IDG.net

We talk to the folks who dreamed up monikers such as Pentium, PowerBook and DeskJet. In Depth, page 79

Client/server financial software vendors try to extend reach of ERP packages Page 75

COMPUTERWORLD

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KEEP ON TRUCKIN'

Company: Ryder TRS, Inc.

Headquarters: Denver

Status: Second-largest consumer truck rental company in the U.S.

Number of trucks: 32,000

Revenue: $550 million

Ryder trucks out entire IS operation

By Julia King

LESS IS MORE at Ryder TRS, Inc., which has outsourced virtually everything and anything having to do with information systems — including its chief information officer.

Denver-based Ryder last week disclosed a novel five-year outsourcing deal under which Cambridge Technology Partners, Inc. will build and deploy 18 business systems by next fall for the $550 million truck rental company.

After that, Perot Systems Corp. in Dallas will take over the day-to-day operations and sup-

Ryder, page 16

Users trip up IS standards bid

By Craig Stedman
ORLANDO, FLA.

WHILE TRYING to standardize its technology architecture, Primestar, Inc. found a fly in the ointment: Some business units used to going their own way weren't keen to toe the line for the common good.

That means Primestar will have to live with pockets of Macintosh systems and other nonconforming technologies, despite the corporate standardization effort it started six months ago.

"You can't put down an iron fist [with users]," said Michael Merritt, chief information officer at the Philadelphia-based satellite television company. "And in many cases, there's no intrinsic incentive for the business units to say they'll all play along."

Several information technology managers at a Meta Group, Inc. conference here last week said they are having similar troubles getting decentralized business units to pull in the same direction when piecing together an IT architecture.

IS standards, page 16

Wall Street to test Y2K readiness

By Laura DiDio

THE FINANCIAL SECTOR, one of the most proactive industries in preparing for the year 2000, will kick off limited interoperability testing in July — a good 18 months before the millennium strikes.

The pilot, to be conducted by the Securities Industry Association, will involve about 30 institutions, including top stock exchanges, brokerages and banks. It will be the first indication of how well those companies can transmit data among their re-

Wall Street, page 100

Electronic
PROFILING

▸ *Critics fear systems may trample civil rights*

By Kim S. Nash

Pay cash for a one-way plane trip to Syria, and a passenger-screening computer may tag you as a possible terrorist whose luggage needs to be thoroughly searched for a bomb.

Visit a psychiatrist and an employment agency in the same month, and a credit-scoring computer may mark you as someone headed for bankruptcy.

These profiling systems may sometimes be right, and in the process save lives or money. But critics say these systems can also infringe on privacy

Critics, page 28

Retention getters!

Top salaries aren't enough to **hold on** to your **top IT talent. Computerworld's** survey reveals the 25 leaders in **IT retention.** Their successful programs offer alternate career paths, mentoring programs, employee satisfaction surveys and lots of appreciation.

IT Careers, page 82

INSIDE THIS ISSUE

TV or not TV?
That's the question for Web sites that want to advertise. Page 2

The upgrade's in the mail
Lotus incentives prod CC:Mail users to move to Notes. Page 6

HR FEELS THE HEAT
IT staffing shortage pressures HR to cut red tape. Page 20

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UP FRONT

Gates' nightmare

By the time you read this, the question about Netscape's future may be moot. But as of Friday, at least, reports were swirling that the troubled company was up for sale. Rumored suitors included Sun, IBM, Oracle and America Online.

But a buyout may actually be bad for competition in the browser market.

Users would certainly benefit in the short term if Sun or IBM, for example, picked up Netscape and committed to supporting its Navigator as an alternative to Microsoft's Internet Explorer.

But as long as there is that alternative, Microsoft can continue to press its argument that there is competition in the browser market. Ironically, the best long-term scenario for users might be if Netscape continues to twist in the wind while Microsoft devours its market share.

In fact, Bill Gates' nightmare would be to see Netscape declare Chapter 11 while users desert it in droves. If Microsoft were left without any serious browser competition, the government would certainly have to step in and do something drastic.

A buyout may be bad for competition.

That could include forcing Microsoft to spin off Internet Explorer as a separate company or mandating that the browser be put into the public domain and subjected to a standard-setting process.

The latter scenario in particular would be disastrous to Microsoft's efforts to dominate the Internet. But I suspect users would breathe easier knowing that there are multiple authors at work on browser standards.

Microsoft's detractors know this, and I think that's why it is unlikely that they would pick up Netscape at anything less than a fire-sale price. Netscape brings a lot of baggage to any potential suitor. And the courts may step in and do what market forces have so far failed to accomplish.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE
BY RICH TENNANT

"YOU KNOW, I'LL NEVER GET USED TO THAT 'EXPLODING BOMB' ERROR MESSAGE ICON!"

E-mail Rich Tennant at thefwave@rtsc.net

Web businesses spend big on ads

▸ Onliners turn to expensive mainstream media to promote sites

By Sharon Machlis

IN THE BATTLE to attract new Web users, the weapons are getting more and more expensive.

Besides traditional online ads and partnerships, an increasing number of World Wide Web businesses are turning to mainstream media — including television — to lure surfers to their sites.

And that doesn't come cheap.

Ameritrade, Inc., for example, recently shelled out $25 million in one quarter to promote its new $8 electronic stock trading price.

The campaign included such costly TV advertising buys as *ABC's Monday Night Football* and *Seinfeld*.

That's a lot of money, admitted Ameritrade President Michael Anderson.

"But it's critical as the industry is exploding to grow as quickly as possible. We went very aggressive on our advertising," he said. The payback was 51,000 new customers in three months, he said.

Auto-By-Tel (*www.autobytel.com*), which is believed to be the first Internet business to buy a Super Bowl spot last year, plans its biggest network TV schedule ever this quarter, said Anne Benvenuto, senior vice president and marketing director at the company.

That follows a dramatic increase in site activity and 93% rise in requests for car-purchase information after this year's Super Bowl ad, she said.

"It's branding, and it's selling," Benvenuto said. "From things I hear in general, I think you will probably see [Web businesses] shifting and doing more with traditional media."

WEIGHING THE BENEFITS

Other sites that haven't yet gone into TV marketing are pondering the move.

"We have looked very hard at television," said Eric Singleton, vice president of information systems at AlliedSignal Automotive Aftermarket in East Providence, R.I. The company launched a major Web site last fall. Singleton believes by the end of this year, the long-predicted merger of TV and the Internet will start to happen. That will make TV advertising even more compelling, he said.

Overall, IT executives can expect sales and marketing costs to be the fastest-growing portion of their Web site budgets, outstripping both technology and personnel, according to Forrester Research, Inc.

The Cambridge, Mass., research firm said that by 2000, the total annual cost of running a 6 million page-view/month news or entertainment site will rise to $6.3 million per year, compared with about $3 million last year. Of that $6.3 million, sales and marketing will account for an estimated $2.5 million — almost 40% of the total vs. 28% last year.

BUILDING LOYALTY

Many Internet businesses say the next few years are crucial, because more and more Americans are expected to begin Web surfing in earnest. Sites are scrambling to build their brand names before the newbies' online habits are set.

"New customer acquisition right now is critical for all online players," said Marc Johnson, an analyst at Jupiter Communications, Inc. in New York. "It's getting much more expensive ... by orders of magnitude." Mainstream media campaigns cost at least three times as much as their Web-based counterparts, he added.

But not everyone agrees the time is ripe for mass marketing Web sites.

"I think the return on marketing dollar isn't there yet," argued Jae Kim, an analyst at Paul Kagan and Associates, Inc. in Carmel, Calif.

Kim said companies are paying to reach too many consumers still off-line.

Some sites are compromising by running television ads in select markets where Internet usage is unusually high.

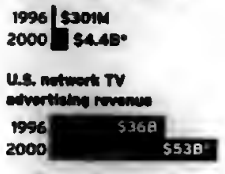
Infoseek, for example, bought TV spots in New York and San Francisco last quarter, paying about $2 million to $3 million.

A similar national campaign would run tens of millions of dollars, said Barak Berkowitz, vice president of marketing at Infoseek.

Ameritrade officials said their ad splurge was tied to the new price cut and that the company isn't likely to keep spending at a $100 million-per-year clip. "There's an opportunity for us to spend less and still seem big," Anderson said. □

TV OR NOT TV

Advertising dollars may be heading to the 'net, but TV is still the place to be:



*Projected

Source: Advertising Age, New York

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www.commerce.net/stats/advert.html

▸ Internet advertising
http://advertising.utexas.edu/world/Internet.html#Top

▸ Advertising, Marketing and Electronic Commerce
www.ntu.edu.sg/library/advtise.htm

Win NT to get boost from legacy players

By Tim Ouellette

MICROSOFT CORP. IS leaning on traditional legacy system makers to turn Windows NT into a true enterprise-level player.

Last week, the Redmond, Wash., company inked deals with Amdahl Corp. and Siemens/Nixdorf Information Systems, Inc. aimed at smoothly blending Windows NT systems into the traditional data center mix.

But the staffing crisis facing the information technology market may hamper any immediate gains for users. For example, Amdahl plans to hire and train 1,500 engineers, which could take as long as two years to accomplish.

JOINING FORCES

Microsoft's deals follow last month's pact with Digital Equipment Corp., last fall's partnership with Unisys Corp. and a long-standing relationship with Hewlett-Packard Co.

The Microsoft/Amdahl agreement differs from the others because it is focused solely on data center integration of NT. Sunnyvale, Calif.-based Amdahl is a maker of traditional mainframe systems (see story at right).

The other agreements focus more on developing enterprise-class applications based on Windows NT, officials at both companies said.

Despite NT's rapid acceptance and growth, "we still have farther to go than we've come," said Steve Ballmer, Microsoft's executive vice president of sales. "Customers want to off-load transaction processing, and we have to provide that power."

So Amdahl will focus on training a slew of new engineers and creating demonstration centers to tackle Windows NT-mainframe integration efforts (see chart).

But it could take two years to get fully scaled up because of the need to hire and train more engineers, said Amdahl President and CEO David Wright.

Still, the moves benefit both Microsoft and legacy systems vendors.

POWERFUL PARTNER

"Everyone [in the high-end] should have an alliance with Microsoft," said Jim Castle, an analyst at Gartner Group, Inc. in Stamford, Conn. "That way it is easier to have a conversation with users."

"Our customers more and more are picking NT," Wright agreed. "So it's hard to give our users a vision of the data center of the future without getting closer to Microsoft."

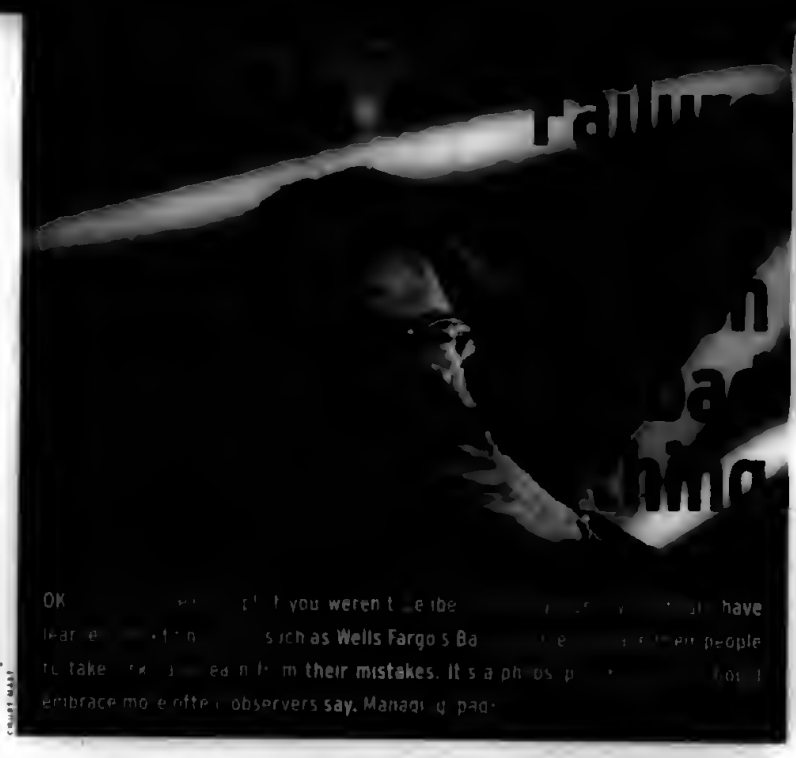
Microsoft's deal with Siemens targets better central administration capabilities for companies running a mix of Windows NT, Unix and mainframe systems. The work will be based on Siemens' TransView software. □

Senior Editor Laura DiDio contributed to this report.

NT MELDS WITH BIG IRON

As part of its deal with Microsoft, Amdahl will:

- **Train 1,500 new Microsoft Certified Engineers to work on NT/mainframe integration projects**
- **Create a Windows NT host integration laboratory**
- **Build four Windows NT business solutions centers around the world managed by its DMR Consulting Group subsidiary**
- **Provide migration services for mainframe E-mail system users who want to move to Microsoft's Exchange Server**



Amdahl delivers more punch

▸ *Adds power, moves up shipment of new mainframes*

By Tim Ouellette

THIS WEEK Amdahl Corp. will break a promise on its mainframe upgrade road map by delivering systems that are more powerful and earlier than expected.

The Sunnyvale, Calif., company will unveil its 700 Series Millennium mainframes, with shipments slated for Feb. 18. The machines include 80-MIPS CMOS engines, which are higher than the 75-MIPS machines promised by Amdahl when it laid out its plans to upgrade its offerings last summer [CW, June 9].

Users and analysts said it was important that Amdahl delivered because the systems offer more punch than IBM's 65-MIPS G4 mainframes.

"I felt we could survive until Amdahl got the faster engine," said Warner Hull, manager of capacity planning at Blue Cross/Blue Shield of Florida.

"We have a batch window that is shrinking. And the only thing in my experience that can get you through faster once you have done everything else is even faster engines," Hull added.

A dynamic upgrade feature in the 700 Series machines will also let users install up to 12 engines in a system and "turn on" any additional engines they may need without rebooting the box. □

Cisco makes Gigabit Ethernet bid

▸ *Company's rollout expected to boost market*

By Bob Wallace

THE GIGAWAIT for Cisco's Gigabit Ethernet is almost over.

Cisco Systems, Inc. this week is expected to enter the fray with Gigabit Ethernet modules for its Catalyst 5X00 switch line, high-end 7500 routers and a new local-area network switch.

Cisco was expected to quickly enter the Gigabit Ethernet switching market after the San Jose, Calif., company bought Gigabit Ethernet start-up Granite Systems, Inc. in September 1996 for $220 million.

Cisco has admitted that development has taken longer than expected but didn't cite reasons.

The entry from Cisco, the leader of the switching market, will help the Gigabit Ethernet cause, said Bill Horst. "When Cisco gets into the market, it will legitimize the technology for many users," said Horst, network manager at the U.S. General Services Administration in Boston. "Without Cisco as a player, Gigabit Ethernet doesn't have nearly as much credibility."

Cisco is expected to announce the Catalyst 5505, a five-slot switch that can be equipped with Gigabit Ethernet switching modules, said sources briefed by Cisco who asked not to be identified.

The Catalyst 5505 can support forwarding at multimillion packet/sec. rates.

And it protects customers' investments in the older Catalyst 5000 by supporting modules from that product.

The Catalyst 5505 can be configured to support up to 192 switched Ethernet ports, 98 switched 10M/100M bit/sec. Fast Ethernet ports, 50 switched 100M bit/sec. ports or four Fiber Distributed Data Interface ports. The system also supports Asynchronous Transfer Mode.

"When Cisco gets into the market, it will legitimize [Gigabit Ethernet] for many users."

– Bill Horst, General Services Administration

Cisco also will announce a card that enables its Catalyst 5X00 switch line to support Layer 3 switching, which is routing built in to LAN switches. □

Jargon Judge, a new feature by *Computerworld*'s Anne McCrory, passes sentence on buzzwords. **Managing, page 72**

Learn about the differences between an object database and an object/relational database. **QuickStudy, page 33**

1-800-FLOWERS hopes a Web-based network will speed Valentine's Day orders. **The Internet, page 45**

In this issue

NEWS

6 **Outsourcers multiply** like rabbits, increasing the range of options for users.

12 **Lycos absorbs** site that is a magnet for the lucrative Generation-X audience.

14 **FAA faces** federal challenge on its down-to-the-wire year 2000 program.

20 **Client/server returns** in the Internet era, with setups that make it look like a mainframe.

OPINION

26 **Digital died** long before it was acquired, despite great engineering and a legendary facility, Sharon Machlis charges.

101 **"net bits dominate** consumption and transform marketing, Don Tapscott charges. Are you ready for them?

TECHNICAL SECTIONS

CORPORATE STRATEGIES

39 **Nontechies promise** to be the next labor pool for IS.

39 **Programmer contribution,** giving inner-city kids training and computers.

39 **Pols worry** that year 2000 programs are vulnerable if global carriers miss the boat.

THE INTERNET

45 **Web accelerates** flower orders, as 1-800-FLOWERS brings ordering and chat online.

45 **Web-enabled programming lets** coders securely collaborate from home.

45 **Conversion tool translates** with promise to convert mainframe code to Java, simply.

THE ENTERPRISE NETWORK

49 **Virtual network links** in-room TV supplier sites without the work of a WAN.

49 **Notes users finally adopt** groupware because of the Web, not despite it.

SOFTWARE

56 **NCR bids to make** Teradata friendlier, with ties to Microsoft's SQL Server.

56 **EMC enhances** systems management and fail-over for Windows NT

SERVERS & PCs

59 **Digital technology promises** Compaq much, even if Compaq's only eyeing Digital's lucrative service group.

59 **Review:** JavaStation promises a change all out of proportion to its small size.

59 **Toshiba unveils** ultraportables that have the punch associated with larger laptops.

DATA WAREHOUSING

65 **Office Depot stays ahead,** using decision support in a competitive market.

65 **Data warehousing fosters** new jobs that tie together IS and business analysts.

FEATURES

MANAGING

70 **CIOs demonstrate** how to turn failure into a strategy for success.

REVIEW CENTER

72 **Financial software vendors strive to** extend the reach of packages such as SAP R/3.

IN DEPTH

79 **Brand names say** a lot about a technology. We talk to the guy who picks them.

IT CAREERS

82 **Retention poses** a bigger challenge than recruitment in a tight job market.

ETC.

Company index 99
Editorial/Letters 34
How to contact CW 99
Inside Lines 101

Oracle mix-'n-match creates ERP niche

By Randy Weston

CONVENTIONAL WISDOM dictates that users standardize on a single, integrated application package for enterprise resource planning (ERP).

But some Oracle users in the consumer packaged goods industry are bucking that notion. They are opting for a mix-and-match conglomeration of applications from Oracle Corp. and several niche partners. The added twist is that the vendors are handling support, service and integration themselves.

Those users are implementing an applications package from Oracle, called Oracle CPG, for the consumer packaged goods industry, and from some niche vendors that have spent the past year integrating their products (see chart).

That makes Oracle, with the help of its partner vendors, the only ERP vendor to offer a package that makes it lead systems integrator and makes it accountable for the entire package.

"One [vendor] can't do it all," said Jay Shreiner, chief information officer at Kellogg Co. in Battle Creek, Mich. "We do not want to be an integrator."

The 92-year-old, $6.8 billion company is standardizing its global operations on the package. The package is a mixture of Oracle's financial and manufacturing management software as well as software from Manugistics, Inc. in Rockville, Md.; Industri-Matematik International Corp. (IMI) in Tarrytown, N.Y.; Indus International, Inc. in San Francisco; and Information Resources, Inc. (IRI) in Chicago.

"We have spent more consultant money on this project than in the first 100 years of our company."
– Dick Jirsa, J. M. Smuckers

But Oracle's package comes with trade-offs because the integration isn't as tight as that of a more traditional ERP system.

"This is still a work in progress," said Ed Black, an analyst at Aberdeen Group, Inc. in Boston. "Part of what [the vendors] have to resolve are things like data semantics between the applications and business processes that cross applications. It's not an easy problem to fix."

Black added that although the Oracle CPG application package isn't yet a unified product, the vendors promise that by Version 3.0 — due for release in 1999 — the loosely knit applications will be tightly sewn together.

For dairy giant Land O'Lakes Creameries, Inc. in Arden Hills, Minn., the bottom-line benefit to its business outweighed any integration loss.

"Our customers want to make sure that when they order something it is what they want, in the quantity they want, where they want it and the hour they want it," said Mark Wilberts, vice president of information systems at Land O'Lakes.

He said other ERP products didn't address the needs of the consumer goods industry. And when he learned that the CPG package took the integration tasks out of users' hands and put them in the vendor's hands, that clinched the deal.

Dick Jirsa, vice president of IS at jelly maker J. M. Smuckers Co. in Orrville, Ohio, agreed that the benefits are worthwhile. But he warned there are disadvantages, such as the high cost of consultants.

"We have spent more consultant money on this project than in the first 100 years of our company," Jirsa said.

But in the end, Smuckers' hopes the systems will give employees the information necessary to kick-start the firm's stalled growth and save up to $30 million per year with better managed inventory, production cycles and business processes. □

Consumer packaged goods modules

Company	Component
Oracle	Financials
Oracle	Process manufacturing
Manugistics	Logistics/planning
IMI	Order management
IRI	Sales and marketing
Indus	Plant maintenance

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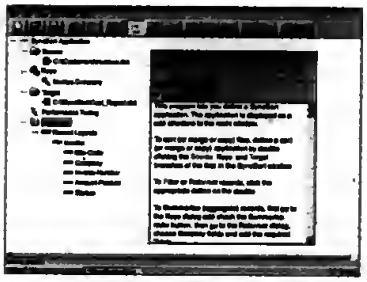

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Outsourcing applications management provides options

▸ *Developers line up to alleviate hassle, cost*

By *Julia King*

DOZENS OF NEW players are crowding the outsourcing dance floor, giving users a greater choice of partners to maintain their enterprise applications.

This week, Denver-based software maker J. D. Edwards will formally announce an outsourcing unit that furnishes network-based enterprise software services for a monthly fee.

It follows similar disclosures by PeopleSoft, Inc. and SAP AG, which both plan to run users' versions of their packaged enterprise software as well as associated business processes, such as payroll or order entry.

HOT MARKET

"Applications management of enterprise software is one of the hottest growing markets," said Denny Wayson, an analyst at Dataquest in San Jose, Calif.

Driving that trend is users' growing realization that operating even plain-vanilla implementations of packaged software is simply more hassle and expense than it is worth.

Among other things, hiring and retaining skilled information systems personnel is a huge problem for all companies.

"My thought was, let them take the monkey off my back," said Dick Lefebvre, director of information technology at Simpson Industries, Inc., a $450 million auto parts manufacturer in Plymouth, Mich.

Simpson's nine U.S. locations, plus a plant in Mexico, all run on J. D. Edwards software, which resides in Rochester, N.Y., on a mainframe operated by IBM Global Services, one of two partners in J. D. Edwards' new outsourcing business. The other partner is World Technology Services.

E. Kent CFO Brian Laurance says the company has saved by adding user licenses rather than making platform upgrades

Simpson's biggest gain is improved system performance and reliability, Lefebvre said.

"We had four hours of unscheduled downtime in all of last year. I didn't have a record of doing that before," he said. "The best testimony is the absence of complaints. I like the stillness."

Smaller companies, such as E. Kent Halvorson, Inc., a $60 million construction company in Redmond, Wash., gained more software functionality under its outsourcing contract with J. D. Edwards and World Technology Services.

"They provided construction-specific enhancements, such as better job-costing, that we would not have had access to had we purchased the system directly," said Chief Financial Officer Brian Laurance.

"We also know with some certainty what our monthly costs are. As our volume increases, we simply add user licenses rather than make expensive platform upgrades," he said.

UP FOR GRABS

But software vendors aren't the only ones out to grab a chunk of what is expected to be a $6 billion to $8 billion applications outsourcing market within the next few years.

Large and small consulting companies, including Chicago-based Andersen Consulting and Plaut Consulting, Inc. in Waltham, Mass., are also moving in.

Analysts said it remains to be seen whether software vendors or consultancies make the best outsourcing partners.

That will depend largely on the core skill sets of employees they assign to outsourcing projects.

With SAP's R/3, for example, "it will depend on who's going to do the configuration, the database tuning and the continual changes," said Barry Wilderman, an analyst at Meta Group, Inc. in Stamford, Conn.

"This is pretty dynamic stuff to outsource," he said. "It's not like outsourcing the help desks. It's outsourcing the business flow."

Plaut's offerings, announced last week, range from assembling customers' R/3 systems off-site to full-scaled production outsourcing.

Andersen offers a service that includes everything from software implementation and software configuration to day-to-day operations. □

Staff writer Randy Weston contributed to this report.

Lotus readies mail migration tools

▸ *Year 2000 issues, vendor plans put pressure on CC:Mail users*

By *Barb Cole-Gomolski*

LOTUS DEVELOPMENT CORP. is planning a migration push that it hopes will spur users of its CC:Mail package, IBM's Profs and competing mail systems to move to Notes, company officials confirmed last week.

As part of the plan, the Cambridge, Mass.-based unit of IBM is considering giving away the Notes 5.0 client — due next fall — to users of recent versions of CC:Mail. It also is readying middleware, called R6D, that will let users of older versions of CC:Mail connect to Domino. Currently, only newer versions of CC:Mail can be linked to Domino.

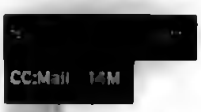
PREPARATIONS

Steve Layne, vice president and general manager of messaging, said a migration tool designed to help Profs users move to Notes is also on tap.

Lotus officials said plans are still in flux, but they confirmed that an announcement is scheduled to take place in the next few weeks. The company is under some pressure here because it has disclosed that those using older versions of the product will have to migrate from CC:Mail soon because of year 2000 problems.

Adding to the impetus to convert its CC:Mail base — as well as the 6 million users of IBM's Office Vision system — to Notes is the fact that those users are being wooed by vendors such as Microsoft Corp. and Netscape Communications Corp.

Worldwide users of messaging systems:



IBM Office Vision 6M

Source: "Electronic Mail and Messaging Systems," Washington

"The lack of good migration tools slowed down our Notes migration by about a year," said James McClendon, assistant vice president of information services at Houston General Insurance Co. in Fort Worth, Texas.

"It was such a pain to try and get historical information from our [Boise, Idaho-based H&W Systems, Inc.] mainframe-based mail system into Notes," he said.

In the absence of such a tool, the insurance company wrote a program to move mail messages and other information to Notes.

SUBTLE NOTICE

Lotus previously had avoided pressuring the 14 million users of CC:Mail to migrate. But that changed with the company's recent announcement that it will provide only minor maintenance upgrades to the mail system, effectively nudging many sites in the direction of a move.

And for CC:Mail users running versions prior to Release 6, which Layne said is about half the user base, there is the looming year 2000 issue. Those versions use a database, called DB6, that isn't year 2000-compliant. Tests have revealed that messages may be deleted unintentionally, messages may not sort correctly and rules that rely on dates may not work correctly.

Layne said users can get around the year 2000 problems by moving to either a later version of CC:Mail or Notes.

But David Marshak, an analyst at Patricia Seybold Group in Boston, pointed out that Lotus basically did away with CC:Mail at Lotusphere."

Although users applauded the Lotus plan, they pointed out that migrations are still likely to be painful.

"I was unaware of the year 2000 problems, and I'm wondering why Lotus hasn't said more about it," said Paul Badowski, senior network specialist at Belcan Engineering Group, Inc. in Cincinnati. The company has about 1,000 CC:Mail seats.

Badowski has moved most users to versions of CC:Mail that are year 2000-compliant. However, one division is running an older version that isn't year 2000-ready, he said.

"People will scream and yell about this, and then they'll do the upgrade [to either DB8 or Notes]," said Mike Gentile, vice president and director of information technology at Zurich American Insurance Group in Shaumburg, Ill., which is moving about 3,000 users from CC:Mail to Notes.

Zurich currently has some older versions of CC:Mail, but those users will be on Notes by the end of the year, he said. □

CONVERSION COSTS

How much does it cost to convert 10,000 CC:Mail users?

	CC:Mail (DB6) to CC:Mail (DB8)	CC:Mail to Notes
Planning	$90,000	$186,000
Pilot	$16,000	$24,000
Software	$0	$368,700
Implementation	$76,000	$268,300
Training	$14,000	$556,200
Documentation	$8,000	$20,000
Total	$204,000	$1,423,200

Base: 60 IT professionals

Source: Collaborative Research, Los Altos, Calif.

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FRANKLY SPEAKING

Pow! Right in the kisser

FRANK HAYES

A PIE IN THE FACE.

That's what Bill Gates got in Brussels last Wednesday just before a meeting with Belgian government officials, a cream-pie-wielding assailant plastered him squarely in the puss.

There was Gates — the world's richest man, undisputed boss of the world's most powerful software company — looking like he'd stumbled out of a slapstick comedy, his face, suit and trademark glasses splattered with white goo.

Unfortunately, that's not the most ridiculous Gates — and Microsoft — have appeared recently.

The company spent a week in mid-January hissing and spitting at Windows NT customers who also use Novell's Novell Directory Services (NDS). Use NDS for NT, and you'll get zero support of any kind from us, snarled Microsoft officials.

Then, after days of consternation from NT users, Microsoft completely reversed itself, vowing full support for all NT users and describing the no-support snit as a "mistake." Ridiculous.

That same week, Microsoft discovered it was possible after all to remove Internet Explorer from Windows 95 without disabling the operating system, after weeks of petulant insistence that it was technically impossible. Ridiculous.

A pie-covered Gates is just one thing making Microsoft look ridiculous.

And about the same time, Microsoft finally admitted many of its products aren't year-2000 ready, despite claiming for years that they were — in the face of users who knew better. Ridiculous.

Now if all this were just the low comedy of bungled public relations or legal posturing, it wouldn't be so worrisome. Even if it merely sent corporate IT planners on a Keystone Kops chase after Microsoft's real support policies and plans — well, IS shops have run that race before.

Unfortunately, Microsoft's antics are putting us all at risk. With every bizarre, misguided, unnecessary attempt to arm-twist or deceive users, vendors or the government, Microsoft is edging us all closer to new laws that would regulate the software industry. Not just Microsoft, but the whole freewheeling business, from packaged application giants to the smallest tool and component vendors.

Think that can't happen? Try telling Sen. Orrin Hatch (R-Utah), who plans to hold hearings on possible misbehavior by Microsoft and other software vendors. Hatch's colleague Slade Gorton from (surprise!) the great state of Washington last week launched a campaign to derail those hearings.

And you won't convince the Software Publishers Association. Last week, the SPA published a set of "competition principles" that decries coercion, vaporware announcements and false claims of competitor incompatibility — explicitly framed to forestall government regulation of software.

SPA members have good reason to be worried. They've watched the once-invulnerable tobacco industry hunted down by an improbable collection of state attorneys general. They've seen Congress and the FCC try to slap new requirements on broadcasters, telcos and cable TV companies.

SPA members don't want that to happen to their industry. And they're more than willing to cast Microsoft as a loose cannon if that lets them dodge wide-ranging government intervention.

The irony is that Microsoft doesn't need to shove Internet Explorer down PC makers' throats, threaten NDS users or babble baloney about year-2000 compatibility. Customers will buy Microsoft's products on their merits. They don't have to be coerced in ways that raise the ire of legislators and Justice Department lawyers.

Here's hoping Bill Gates figures that out soon — before all IT users wind up covered with something a lot messier than cream pie.

Hayes is Computerworld's West Coast bureau chief. His Internet address is frank_hayes@cw.com.

SHORTS

Netscape on the block?

Speculation was rampant last week that Netscape Communications Corp. would be acquired in whole or in part. Reported suitors include chummy Sun Microsystems, Inc., IBM, Oracle Corp. and American Online, Inc. Netscape's stock rose 14% in heavy trading Thursday, to $21.94 as investors reacted positively to the acquisition rumors.

Intel, National Semi settle suit

Intel Corp. and National Semiconductor Corp. announced a settlement in a patent infringement lawsuit and extended terms of a patent cross-license pact. The settlement dismisses a lawsuit against Intel by Cyrix Corp. Cyrix is now a subsidiary of National Semiconductor, based in Santa Clara, Calif.

Standard set for 56K modems ...

After a year of competing technologies, the International Telecommunications Union has approved a standard for 56K bit/sec. modems. Friday's announcement means users soon will be able to upgrade their existing modems or buy new ones and not have to worry about incompatibility between 3Com Corp.'s X2 technology and the K56flex technology from Lucent Technologies, Inc. and Rockwell Semiconductor, Inc. The V.PCM standard will be used in modems due from some vendors next month.

... but not for Gigabit Ethernet

The Gigabit Ethernet movement suffered a setback last week when the group working on a standard for the high-speed switching technology said it will be delayed at least three months. The group is having problems running Gigabit Ethernet traffic over certain lengths of multimode fiber-optic cable. The standard was expected to be completed next month but will now be delayed until June, according to a spokeswoman for the Gigabit Ethernet Alliance.

Report: Sybase to buy Intellidex

Database vendor Sybase, Inc. this week plans to announce a deal to buy Intellidex Systems LLC, a Winthrop, Mass., maker of software for managing the informational meta data used in data warehouses, according to a Meta Group, Inc. report. Attempts to reach officials at Emeryville, Calif.-based Sybase were unsuccessful. Intellidex was founded in 1996 as a spin-off from BankBoston in Boston. It released its first product last year. A Sybase official confirmed that "the basic gist of what [Meta Group] said is accurate." The Meta report said Sybase also is still looking to add data transformation and complex analysis tools to its product line, which includes a database geared to decision-support applications.

DG to ship 64-processor box

Data General Corp. this week will announce a server that lets users load up to 64 Intel processors in a single box. The systems, which use a technique called Non-Uniform Memory Access, won't start shipping until year's end or later.

U.S. wins case on LAN gear

The World Trade Organization in Brussels awarded U.S. networking vendors a victory last week. The organization condemned the European Union for reclassifying LAN devices as telecommunications equipment rather than computer systems. The ruling came after U.S. officials complained the EU was imposing stiff 5% tariffs on equipment sold by companies including Cisco Systems, Inc., 3Com and Bay Networks, Inc. The result of the ruling would mean the tariffs would be cut to 3%. European officials said they will consider an appeal.

CyberMedia sues Symantec

CyberMedia, Inc. in Santa Monica, Calif., last week sued Symantec Corp. in Cupertino, Calif., charging the antivirus maker with copyright infringement and theft of trade secrets. CyberMedia claimed the code in Symantec's Norton Uninstall Deluxe package was derived from an earlier version of CyberMedia's rival UnInstaller program. Attempts to reach Symantec were unsuccessful. CyberMedia wants compensatory and exemplary damages. It also asked the court to order Symantec to stop selling its product.

SHORT TAKES IBM last week demonstrated the world's first 1000-MHz (1-GHz) chip, containing 1 million transistors. However, commercial applications are at least a year away. . . . **SAP AG** co-founder Dietmar Hopp, 57, said he is resigning from the German company's executive board. . . . Federal antitrust officials have approved a plan to create the **Interactive Travel Services Association** — an online travel association — as long as members, including **American Express, Microsoft Corp., America Online, Biztravel.com** and **Sun**, don't swap data on pricing or users. . . . Start-up **Altoon Networks, Inc.** in San Jose, Calif., this week will announce what it is billing as the first switch with ports that can operate at 10M bit/sec., 100M bit/sec. or 1G bit/sec.

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Users want more features from ESuite

By Gordon Mah Ung and Barb Cole-Gomolski

WITH LOTUS Development Corp. about to release its network computer office suite this month, some users have expressed concerns about its limitations and doubts about whether it will find a home in their organizations.

One worry is that remote and mobile users won't be able to use the software, which sits on a central server, when their network computers are disconnected from the network.

Lotus' ESuite WorkPlace is the first Java-based productivity suite to be released from a major vendor. It is expected to ship this month with network computers from parent company IBM.

The suite, a light-duty word processor, spreadsheet, electronic-mail client, organizer and presentation graphics applet, was designed to reduce cost of ownership by shifting software administration burdens to a central server.

"We have a lot of salesmen in the field, and ESuite might be a good option for them," said Jeffrey van Brunt, Lotus coordinator at Dyno Industrier ASA in Salt Lake City. "But you have to stay connected to the network to use [ESuite]."

Lotus officials said they understand that concern and will address it in future versions of ESuite.

They said they didn't think the transactional workers they are targeting with ESuite would need mobile functionality.

NO INCENTIVE

Lotus officials also acknowledged the suite's weaknesses, such as incompatibility with Microsoft Corp.'s Office, lackluster performance and the the lack of a spellchecker. They said they plan to address those issues by the third quarter.

Robert Reeves, manager of application development at tool maker Black & Decker Corp. in Shelton, Conn., said ESuite won't unseat Microsoft Office or become part of Black & Decker's future.

"There might be some small pods in the company that could use ESuite, but it wouldn't be a large percentage."
– Tim Reynolds, Amoco Corp.

Ditto for Tim Reynolds, information systems supervisor at the Denver office of Amoco Corp.

"We've got Microsoft Office, and that's our corporate application standard. I don't see that changing. There might be some small pods in the company that could use ESuite, but it wouldn't be a large percentage," Reynolds said.

But that isn't the market Lotus is pursuing, said Amy Wohl, editor of industry newsletter "TrendsLetter" in Narberth, Pa. Lotus is focusing on the market for replacing dumb terminals.

"I think because it hasn't been available, people really don't know what it's for," Wohl said.

Some users said they see the benefits of switching to ESuite, especially those bitten by the bug to reduce the total cost of PC ownership.

"ESuite is the only thing I would consider replacing a PC with," said Larry Bryant, a systems analyst at an East Coast paper supply company that is testing about a dozen network computers with ESuite.

Bryant acknowledged that end users who are used to riding high on the functionality hog with full-blown office suites on their PCs still may be difficult to satisfy. □

Preview version of Lotus' ESuite demonstrates Java's potential, but needs work. Page 53

"NCD is an overnight success at FedEx."

It's no surprise that Federal Express uses the latest technology to stay one step ahead. NCD delivered desktop solutions for FedEx.

Recently, Federal Express Corporation (FedEx) replaced nearly 3,000 terminals with NCD HMX desktop devices at 15 customer service sites across the U.S.

According to Dave Barnwell, Federal Express Corporate Director of Customer Service Technology Systems, there were three criteria for the new desktops: "First, they had to improve the job design of the Customer Service Reps. CSRs had to like it more, and have their job enriched by having it. NCD met that. Secondly, they had to improve customer service. They are doing that. Finally, it had to pay for itself. It's done that, too."

"Centralized maintenance was also a big issue. When you think about 15 sites and that number of seats..." Now, FedEx CSRs have 17" color monitors and are running mainframe apps, customer service apps, WinCenter (which delivers MS Office apps) and the Internet. "In essence, I have four different computers, all in one desktop device," said Barnwell. "We would make the same decision again. (NCD) turned out to be less expensive and easier to support."

"Not only does NCD offer a very good product, they've enhanced their relationship by working more closely with us to understand our needs, and then come up with solutions. I'm very pleased."

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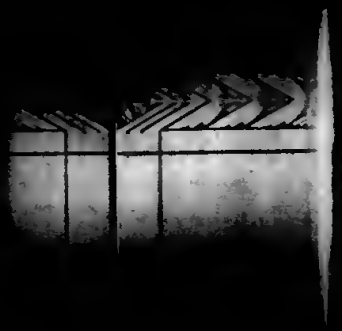

ORACLE

REE CD

Reuters suspected of stealing data

▸ *Subsidiary accused of trying to get proprietary data from rival Bloomberg*

By Kim S. Nash

SUSPICIONS OF corporate espionage carried out by a subsidiary of business news firm Reuters Holdings PLC underscore the importance of computer-based analysis on Wall Street.

A Stamford, Conn.-based unit of Reuters is suspected of trying to illegally obtain proprietary information from rival Bloomberg L.P. Reuters allegedly wanted to get inside information about a successful Bloomberg "analytics" system used to predict financial trends.

Reuters confirmed it is being investigated by a grand jury. Bloomberg officials declined to comment. The U.S. Attorney's office in New York didn't return telephone calls.

A grand jury could bring charges for crimes under the federal Economic Espionage Act. The 1996 law was designed to prosecute trade secret theft.

Pressure to compete with Bloomberg in analytics could have led to "poor judgment calls" at Reuters, surmised Michael Gazala, an analyst at Forrester Research, Inc. in Cambridge, Mass.

Financial data suppliers live in "an incredibly fast market where information is available to everyone, so how you analyze the information makes all the difference," Gazala said.

Subscribers to the Bloomberg system receive a near-constant stream of data about stock, bond and other financial transactions via special terminals supplied by Bloomberg in New York. Users also get software that offers roughly 6,000 built-in functions for analyzing current and historical data.

Corporate intelligence is an exploding job market, with membership in the Society of Competitive Intelligence Professionals growing 40% per year since 1994. Median salary is $63,000.

Analytics is a core business for Bloomberg, but rival Reuters "has not done well" there, said Octavio Marenzi, an analyst at Meridian Research, Inc. in Needham, Mass. London-based Reuters is known more for simply providing historical data. "That's a commodity business. Anyone can do it," Marenzi said.

IMPROPER ACTIONS?

A grand jury probe led by the U.S. Attorney's office in New York has focused on a computer company Reuters recently bought. The probe reportedly was launched last year by a tip from a former Reuters worker.

Specifically, the government is investigating whether Reuters Analytics, Inc. "improperly induced" an outside consultant to obtain proprietary information from Bloomberg. Reuters' parent company confirmed in a statement late last week.

Also at issue is whether any Reuters products contain information obtained illegally from Bloomberg. Although Reuters doesn't plan to withdraw any products, the statement said it will take "remedial action" if it discovers proprietary information belonging to Bloomberg in its products.

Suing Reuters might put Bloomberg in a bad spot, even if Bloomberg has been wronged. The trade secrets at the heart of a case often get revealed in depositions and other documents demanded during trial, which devalues the proprietary data.

At least three Reuters Analytics executives have been placed on paid leave.

Competitive intelligence professionals, also known as corporate spies, continuously wrestle with ethical questions about how far to go, short of breaking laws, to get information about rivals.

Business ethics credos at 148-year-old Reuters and Reuters Analytics probably hadn't meshed yet, said Harman Avery Grossman, a trade secrets lawyer at Johnson & Johnson in New Brunswick, N.J. □

IDG News Service reporter Marc Ferranti contributed to this report.

SEARCH ENGINE EVOLUTION

Lycos buys Tripod to 'complete' itself

By Sharon Machlis

IN A MERGER of two top 20 World Wide Web sites, Lycos, Inc. last week acquired Tripod, Inc. in a $58 million stock deal.

With the purchase, Lycos gains access to Tripod's Generation X audience — estimated at 1 million members — and more than 100 million page views per month.

Tripod features interest areas, called "pods," geared toward the Generation X set, as well as simple, free personal Web page publishing.

The merger is part of a continuing effort by so-called "portal" sites such as Lycos and Yahoo to transform themselves from simple search engines to complete "destinations" offering everything from customized news to Web-page hosting and free electronic mail. It is believed that such sites will attract more surfers and keep them longer, raising the appeal to advertisers.

"I think the deal is a great one for Lycos," said Chris Charron, an analyst at Forrester Research, Inc. in Cambridge, Mass. The acquisition fills a hole in Lycos' lineup by adding strong personal Web publishing, he said.

"The prevailing wisdom is that there will be two or three big winners in the portal space, and that's still to be decided," Charron said.

ADVERTISERS WAIT AND SEE

Most online advertisers are waiting for a few Web winners to emerge before committing to exclusive advertising contracts, he added.

Lycos, in Framingham, Mass., already has a partnership deal with another major player in the personal Web page space, GeoCities. Rival Yahoo, Inc. last month said it purchased a $5 million stake in the same firm.

Lycos was No. 8 on the December 1997 list of most-visited Web sites as ranked by Relevant-Knowledge, Inc. in Atlanta. Tripod, in Williamstown, Mass., came in at No. 15.

Lycos turned a profit in its last quarter, and Tripod executives have said they expect to at least break even this year.

Lycos plans to retain the separate look and feel of each site but add cross-links and promotions. A search on Lycos, for example, should soon include matching Tripod pods and personal home pages. Meanwhile, Tripod will use the Lycos search engine on its site. □

What Lycos gets in its $58 million Tripod acquisition:

- **Almost 1 million Tripod members, many in the 18-to-34 age group**
- **4,000 new registered members per day**
- **100 million page views per month**
- **Advertisers such as Chrysler Corp., Fidelity Investments, Ford Motor Co., Columbia TriStar and Visa International, Inc.**

Microsoft wins round with DOJ, but states fight harder

By Carol Sliwa

FOR MICROSOFT CORP., last week was a mix of ups and downs on the legal front.

A U.S. Court of Appeals halted the work of a special master appointed to issue findings in the U.S. Department of Justice's case against Microsoft, pending a hearing set for April 21.

Microsoft argued that the special master, Harvard University professor Lawrence Lessig, had shown bias against the company and that the District Court erred in the manner in which it appointed the special master.

DIGGING DEEPER

While the appellate court at least temporarily sided with Microsoft, attorneys general for 11 states expanded their antitrust investigations and issued subpoenas seeking information about Microsoft's marketing practices for Windows 98.

Microsoft said it will supply the information.

According to a company spokeswoman, plans will continue unchanged for Windows 98, which is due in the second quarter.

Last week, the Justice Department, too, issued new subpoenas seeking information from several online content providers that have deals with Microsoft.

SPA RULES

Yet another thorn in Microsoft's side last week was the Software Publishers Association's (SPA) new guidelines on fair competition. The rules are intended for government officials involved in antitrust enforcement.

Microsoft is a member of the SPA's government affairs committee, which drew up the principles. But Microsoft was unable to "deter the attacks" of competitors that were also on the committee, according to the spokeswoman.

Attorneys general for 11 states expanded their antitrust investigations and issued subpoenas seeking information about Microsoft's marketing practices for Windows 98.

Among the Washington-based group's list of eight principles is one that says vendors — Microsoft, for example — shouldn't build their own services or products in to the operating system unless the same integration ability is afforded competing vendors.

"It's unfortunate that the SPA has lost focus on industry issues and has been co-opted by a few competitors who want to use the government as a weapon against Microsoft instead of competing in the marketplace," the Microsoft spokeswoman said. □

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Finalist

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Clinton rallies Y2K forces

By Matt Hamblen

PRESIDENT CLINTON last week created a year 2000 council that not only will oversee the government's ongoing efforts to avoid a computer catastrophe, but also will coordinate outreach to private industry and state, local and foreign governments.

"Minimizing the Y2K problem will require a major technological and managerial effort, and it is critical that the United States government do its part in addressing this challenge," Clinton said in an executive memo.

U.S. Rep. Connie Morella: Clinton's order creates "a bully pulpit on year 2000"

The order calls on the federal government to "cooperate with the private-sector operators of critical national and local systems," including those in telecommunications, finance, public health, transportation and electric power generation.

The President's Council on the Year 2000 Conversion will be led by John A. Koskinen, former deputy director of management at the Office of Management and Budget (OMB). The vice chairwoman will be Sally Katzen, who coordinated federal year 2000 conversion efforts at OMB until she left in January to become deputy director of the National Economic Council.

Observers praised the move, noting the government's need to address whether systems and networks globally will be able to interoperate.

"A strong federal commitment on this problem is critical, and the stronger the administration is, the better off the country will be," said Rona Stillman, chief scientist at the General Accounting Office, an arm of Congress.

A key issue is making sure state, local and federal systems can interoperate, said Linda Cohen, an analyst at Gartner Group, Inc. "The CIO for Pennsylvania is right when he says it isn't going to matter if he fixes the Y2K problem at home and can't feed lists of welfare eligibles into the federal system."

Government agencies have repaired only 10% of mission-critical government systems, according to a December OMB report. The OMB said it will cost nearly $4 billion to solve the government's year 2000 problem, but officials haven't estimated the costs of verifying interoperability with systems and networks worldwide.

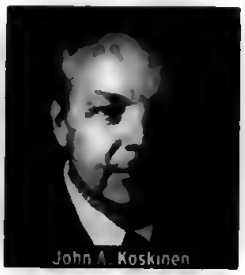
U.S. Rep. Connie Morella (R-Md.) and other legislators had previously urged creation of a year 2000 council so the president could use his influence to encourage industry and other governments to act.

"It is exactly what we asked for, creating a bully pulpit on year 2000," Morella said.

Koskinen will testify before Congress on year 2000 issues and devote time to coordination with groups outside the federal agencies, Morella said.

U.S. Sen. Daniel Patrick Moynihan (D-N.Y.), warned that the new council is running out of time. "I should warn Mr. Koskinen that with fewer than two years remaining, he faces what looks to be the 13th Labor of Hercules," he said. □

Leading the charge



John A. Koskinen

John A. Koskinen, chairman of the President's Council on the Year 2000 Conversion, discussed his new role with staff writer Matt Hamblen.

CW: Do you consider this a good assignment or a daunting one?
KOSKINEN: It's a mixed challenge. I'm an optimist, and I've spent my life managing turnarounds. This is a management project and an important one because our country and our world have become increasingly reliant on information technology.

CW: How involved will you get in the ongoing year 2000 government effort?
KOSKINEN: I don't want anybody to think this office is managing the day-to-day details of government year 2000 work. It's my job with a small staff to oversee processes to make sure everybody is doing whatever is necessary and bringing the cabinet's and the president's attention to any issues we face.

CW: Is the government far enough along, with less than two years left and 10% of its critical systems fixed?
KOSKINEN: Obviously, we'd be delighted if it was 100% fixed right now. . . . One of the first things the council will do is review with agencies the progress in their testing.

CW: Should the government put more emphasis on drawing up contingency plans if systems fail?
KOSKINEN: We need to sit down and say, what are the worst things that could happen and what are the worst exposures? What are the biggest risks, and how confident are we that we won't experience that risk? Finally, what would we do [if something failed]. We need to be prepared in advance.

Feds slam FAA for millennium mess

By Thomas Hoffman
WASHINGTON

THE FAA IS SO far behind on addressing its year 2000 problems that elected officials are deeply concerned that systems failures could compromise or shut down an air traffic control network responsible for monitoring thousands of commercial flights over U.S. air space each day.

Indeed, the General Accounting Office (GAO) last week released a scathing report on the Federal Aviation Administration's lack of preparedness, citing how delays in completing the awareness and assessment phases of the project "leave FAA little time for critical renovation, validation and implementation activities."

"The country could be left at a standstill, and that could be devastating," said Rep. Bart Gordon (R-Tenn.). There are already predictions that large numbers of flights could be delayed, rerouted or even grounded due to year 2000 failures.

The FAA currently has a targeted completion date of November 1999, a date that is "too close" to the year 2000 deadline, said Kenneth M. Mead, inspector general of the U.S. Department of Transportation.

That concern is spreading to the general populace as noted by a recent survey by *Computerworld* sister publication *CIO* magazine, which found that 41% of business executives won't fly on the magic date.

The situation at the FAA is so bad that its year 2000 fixes won't be completed until mid-2009, according to Stanley Graham, a consultant at TechBeamers, Inc. in Poughkeepsie, N.Y.

Graham, who recently evaluated the agency's efforts, was one of several witnesses who slammed the FAA in a congressional hearing last week for its snail-paced response to dealing with the millennium crisis.

"UNACCEPTABLE"

Jane F. Garvey, the chief administrator who joined the FAA six months ago, admitted the agency has fallen behind and told the subcommittee "that is unacceptable."

To help the FAA and other federal agencies, the GAO later this month is publishing a guide that provides recommended contingency planning steps that can be taken, said Joel C. Willemssen, a director at the GAO.

Garvey, meanwhile, said the FAA can make up for lost time by deploying a "two-track approach" of fixing 329 mission-critical systems and replacing its 14-year-old IBM 3083 mainframe computers with new hardware.

Those host computers need to be replaced "very soon" because IBM no longer makes the thermal conduction modules used to keep the 3083s from overheating, and there are only seven module "spares" left in the world, said Kenneth M. Mead, inspector general at the U.S. Department of Transportation. IBM told the FAA to replace the roachines months ago.

The FAA might want to consider Graham's suggested contingency plan of replicating its IBM 3083 data onto a year 2000-ready environment such as an IBM R/390, as TechBeamers did successfully with Albany International, Inc., an Albany, N.Y.-based supplier of engineered textiles (*www.idsi.net/techbmrs*). □

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Microsoft tries PC management tool – again

By Patrick Dryden

THROUGH SIGNIFICANT overhauls and lengthy field tests, Microsoft Corp. hopes to appease PC managers who have struggled to reduce support costs with prior versions of Systems Management Server (SMS).

The first beta version of SMS 2.0, released last week, offers easier setup and operation, more flexible software distribution and new software metering capability. The next beta version, due this summer, will support 16-bit and non-Windows clients and NetWare and add shortcuts and security configuration.

For many users, SMS has been a "default choice" to manage PCs because it is in Microsoft's BackOffice suite, "but some apply only one or two functions and others don't ever get it running," said Kathrin Winkler, a consultant at Renaissance Worldwide, Inc. in Newton, Mass.

Because initial SMS versions were too complicated, "we're trying to make it easier to manage the manager," said David Hamilton, a product manager at Microsoft.

SMS shows improvement, according to beta testers and analysts, but they said it still needs work. The old version paid for itself despite limitations by eliminating the "sneakernet man-hours" required to upgrade software at 4,000 PCs, said Jon Lonoff, information systems vice president at Banker's Trust Co. in New York.

"Now software distribution is quicker and more versatile in SMS 2.0, so we don't have to trick SMS 1.2 to do what we need," he said.

But Lonoff said in the future he wants to be able to force agents down to desktops. And software inventory "still isn't granular enough to look at one group and see what's running," he added.

Many new SMS 2.0 enhancements should have been included in the beginning, such as simple operation and support for Novell, Inc.'s NetWare Directory Services, said Paul Mason, an analyst at International Data Corp. in Framingham, Mass. "They want to make sure they get it right this time," he said.

Market momentum shifted to vendors such as Intel Corp. and McAfee Associates, Inc. because "users looked elsewhere instead of figuring out why they couldn't use SMS," said Chip Gliedman, an analyst at Giga Information Group in Cambridge, Mass.

Microsoft is "trying to get back in the ball game," Gliedman said, but SMS 2.0 still doesn't cover PC administration needs such as virus control.

If testing goes well, SMS 2.0 probably will ship this fall, Hamilton said. □

SYSTEMS MANAGEMENT SERVER 2.0 TIME LINE

First beta test	**Under way now, copies at *www.microsoft.com/smsmgmt***
Second beta test	**Expected to begin by July**
Release	**Possibly in November (independent of Windows NT and SQL Server updates)**

Users trip up IS standards bid

CONTINUED FROM PAGE 1

Aligning business and technology corporatewide "is a nice academic concept, but it's a very difficult proposition to get there in the real world," said a computer services manager at a large U.S. company that has a mix of decentralized business units.

"Everyone is driven by their own bottom line, not the corporate bottom line. It makes for a very uncohesive [IT] infrastructure," said the manager, who asked not to be identified.

That forces the information systems department to throw extra money at development and support, which in turn raises the thorny issue of how to allocate those costs, he said.

WHO FOOTS THE BILL?

Financial accountability is becoming a key bone of contention between IS and end users, said Dale Kutnick, an analyst and research director at Meta Group in Stamford, Conn.

"You have to get business units to take responsibility for the true cost of the information they need, not just to define what they want," Kutnick said.

For example, Primestar plans to use chargebacks "so people see the ramifications of their technology choices," Merritt said. "We want to show that on an individual basis rather than just burying it in the whole corporate structure."

Putting in corporatewide infrastructure "is the biggest challenge we face," said Jim DiLeo, senior vice president of worldwide IT at The MacManus Group, an advertising and public relations firm in New York. "The bottom line is to make our organization truly global."

The first thing MacManus did was send business executives to each office to lay out the plans and "make sure it's not every man for himself," DiLeo said. Some compensation policies still have to be changed to persuade all of the business units to play along, "but the major brickwork has been laid," he said.

Hill's Pet Nutrition, Inc. also is trying to take a more global approach, in part by installing SAP AG's R/3 application suite worldwide.

But dealing with more than a dozen business units complicates matters, said Michael Campbell, director of global technical infrastructure at the Topeka, Kan., pet food maker.

"We've got 14 vice presidents charged to do the best they can for their own organizations," Campbell said.

"We have an infrastructure, but the question is how unified that is," Campbell said.

Technology issues aren't nearly as daunting as trying to get all hands to agree on standardizing business processes, said Donald Faistl, director of technology infrastructure and communications at International Flavors & Fragrances, Inc. in Union Beach, N.J. □

WHAT CAN BE DONE

How to improve IS ties with business units:

- **Hire liaisons to act as go-betweens with end users**
- **Set up joint business/IS strategy committees**
- **Build marketing skills inside IS or seek outside public relations help**
- **Tell technology workers to think in business terms**

Ryder ships out entire IS operation

CONTINUED FROM PAGE 1

port the applications. Ryder will retain project-management responsibilities only.

"We fundamentally did not want to retain an IT organization or an IT infrastructure at all," said Joe Szmadzinski, Ryder's interim CIO. "This relationship is structured so that these companies truly are the IT department to support Ryder trucks." (Ryder Systems, Inc. sold its consumer division, Ryder TRS, in 1996.)

Perot and Cambridge, Mass.-based CTP stand to lose a significant portion of their payment if agreed-upon business results aren't met. Under the agreement, CTP has put 20% of its fees at risk. Perot declined to disclose its financial arrangements with Ryder.

For example, Ryder has projected that advanced scheduling functions to be built in to its new point-of-sale system should yield additional revenue of $3 million to $5 million. "If we don't achieve that, the amount deferred for that specific system [20%] wouldn't be paid," Szmadzinski said.

EVEN EXCHANGE

On the other hand, both providers stand to gain financially if the new systems perform above expectations, Szmadzinski said.

"What Cambridge and Perot have both done is put some skin in the game. It's the same kind of investment we put into the business when we bought it," Szmadzinski said.

Questor Partners Fund bought Ryder's consumer truck rental business from Ryder System, Inc. in October 1996. Until now, IS support has been furnished by Ryder's Miami-based logistics group.

The risk- and revenue-sharing aspects of the Ryder deal aren't entirely new to CTP or Perot. CTP has been involved with hundreds of fixed-time, fixed-price software development projects.

Perot said it has year-old revenue-sharing arrangement with Parsons Construction Co. in Los Angeles.

But the Ryder deal marks the first time either provider has worked in a three-way alliance, which all agree was largely the brainchild of Szmadzinski.

CTP will replace 110 applications with 18 new ones by this fall. Systems under development include point-of-sale, data warehousing and revenue management systems.

Initially, "we were basically going at this thing from different perspectives," said CTP Vice President Mike Murphy. "We were pushed together by Joe and the Ryder folks as they did research on each of the 19 companies going for the business."

Szmadzinski, who previously worked as an interim CIO to cut outsourcing deals for Delta College in Bay City, Mich., and Handleman Co. in Troy, Mich., said he typically remains at a company for six to 12 months.

Dataquest analyst Denny Wayson said that he expects more such alliances.

"It's a trend for developers to align with best-of-breed players," Wayson said. "They both share in the risk of developing some kind of new system, then spin off a subsidiary or business unit and go to market." □

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▸ *With skills shortage at hand, HR changes approach to IT recruiting*

By Tim Ouellette

THE BANK OF MONTREAL threw away its old human resources playbook.

Nike Inc. is training its general recruiters in the vagaries of information technology.

And Kraft Foods, Inc. has a human resources representative involved in all its strategic IT planning meetings.

The reason: Some IS shops, frustrated with corporate hiring restrictions and red tape, are doing end runs around human resources and going to outside staffing firms.

In response to this and the pressures of the IT skills shortage, corporate human resources departments are rebuilding their approach to IT recruiting.

Part of the problem with traditional human resources practices is their reliance on formal job titles that mean different things in different places, said Norman Matloff, chairman of computer science at University of California at Davis. For example, a software engineer at one company may be called a programmer in another.

That's one reason a number of staffing firms confirmed that IS managers have come to them requesting a particular person after that candidate was turned down by human resources.

"It's not an avalanche, but we are having more of that than we used to have," said Don McLaurin, president of Computer Consulting Group in Columbia, S.C.

"There's a greater demand on HR to react to technology changes and the IT labor shortage," he said. "And traditionally corporate HR doesn't move as quickly to adjust to realities of the IT marketplace."

NEW HUMAN RESOURCES REVIEW

Predictions about how the IT labor shortage will change human resources in the next five years

- **45%** of enterprises will **restructure** their IT human resources programs substantially
- **40%** of companies will redefine IT **salary ranges, career tracks, professional development plans and employee benefits**
- **15%** of IT positions will be filled by **contractors**

Source: Gartner Group, Inc., Stamford, Conn.

CHANGING TIMES

But that could be changing.

The Bank of Montreal is rewriting its compensation scheme and certification process for new IT employees, including looking for people who are willing to stay with the company for the long term.

"It required a whole new organizational structure. We moved to centers of excellence to be more flexible and fluid," said Mary Lou Hukezalie, vice president of human resources operations at the Toronto bank. "This [IT] market changes from day to day, so to keep on top of it is very tough."

The moves by Nike, Kraft and the Bank of Montreal show that human resources wants to ease the tension that has traditionally existed between the two departments.

"Traditionally, companies used to treat high-tech recruiting like they treated IT. They didn't understand it, they pushed it back in a corner or in the lower depths of the company," said Stan Shimizu, a senior technical recruiter at Nike in Beaverton, Ore.

"That's why we try to get all recruiters comfortable now with technology, because technology will soon be driving most everything that we do," he added.

> **"Traditionally, companies used to treat high-tech recruiting like they treated IT. They didn't understand it; they pushed it back in a corner."**
> **– Stan Shimizu, Nike**

Kraft, based in Northfield, Ill., has combined a tight relationship between human resources and IS with extended recruitment and retraining programs.

Human resources has especially focused on trying to attract broad business and technology people to Kraft as computers become more and more tied to the firm's success, said Margaret Schweer, director of human resources and the liaison between human resources and IS.

STRONGER TIES

"The relationship certainly has improved in the last several years," agreed Jim Kinney, chief information officer at Kraft. "HR has really tried to understand what systems is all about, and you can't survive these days without that kind of support."

That doesn't mean that as human resources revamps, temporary staffing companies will be moved out of the picture. Companies are also forging similar tight relationships with staffing firms, so they can ramp up for large projects, said Michael Iandoli, president of TAC Worldwide, a Newton, Mass., technical staffing company. □

Client/server evolution: Thin clients, fat servers

By Randy Weston

CLIENT/SERVER COMPUTING is beginning to take on a new look, and it's one many users have seen before.

Instead of dividing applications between client and server, most vendors are pushing thin client/fat server models reminiscent of old dumb terminal/mainframe configurations.

SYSTEM MANAGEMENT

The idea is to reduce the cost of managing those complex systems.

For example, Oracle Corp. has said the next major release of its application package is likely to be entirely server-based.

SAP AG's R/3 system has used a three-tier architecture from the beginning, with applications sitting on the server, but SAP is also making its applications World Wide Web-enabled for easier deployment.

And PeopleSoft, Inc. moved to a three-tier architecture with Version 7.0 of its application package released in September.

"This new topology looks like the old approach," said John Dunkle, an analyst at Workgroup Strategic Services, Inc. in Portsmouth, N.H. The advantage of deploying it today is that "users are more comfortable with what they know."

MIXING IT UP

BMW of North America, Inc. in Woodcliff Lake, N.J., uses the same network to run legacy mainframe data alongside new Web-enabled financial applications from Hyperion Software, Inc. in Stamford, Conn. Users access both systems through a single intranet Web site.

Thomas Fisher, retailer network technology manager at the luxury car dealer, said the system eliminates the need to send software on disk or CD to about 130 users at dealerships around the continent. "That's definitely one of the main advantages [of thin-client systems], easier software distribution and maintenance of software," he said.

But client/server computing remains a complex proposition, even with the easier-to-manage, server-based model.

Millipore Corp., a $600 million maker of purification products, is beta-testing Oracle Corp.'s new Oracle Applications Network Computing Architecture (NCA). The application package was designed for a network computing architecture in which end users access server-based applications through a Web browser.

Ron Hawkins, director of information technology at the Bedford, Mass., company, said, "We have proven in the client/server world that we can't manage that [two-tier] environment. I hear of guys deploying 30,000 seats in that environment, and all I can say is, 'I'm glad I don't work there.'"

EVOLUTION OF CLIENT/SERVER COMPUTING

System architecture	Definition
Two-tier	Processing logic is shared between the client PC and the server. Database runs on server.
Three-tier	Presentation layer runs on client PC. All processing logic is stored on the server. Separate server used for database.
N-tier	PC runs presentation layer. Multiple servers can be used at processing level and database level for highly distributed environments.

Millipore wanted to avoid upgrading to Oracle's SmartClient applications, which would have required installing the software on some 4,000 PCs and managing that software.

The new NCA applications resemble a mainframe architecture, with users accessing programs on a centrally located server. Hawkins said about half of the 4,000 users will use the NCA applications. That will save the company about $3,000 per user in administration and maintenance costs.

NOT A CURE-ALL

But that doesn't solve all of Hawkins' problems. "Our experience is that there are still fairly complex problems when you have distributed servers, even when they are 100 feet apart in a data center," he said. "It's much more complex than one water-cooled thing sitting on a floor."

Making sure data flows smoothly through the system and maintaining data integrity are just some of the problems with distributed client/server environments. □

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BMC buys BGS Systems to help IS maintain service

By Patrick Dryden

SEEKING TO HELP IS managers assure service, not just monitor it, BMC Software, Inc. last week said it will take over BGS Systems, Inc in a $285 million stock swap

The goal is to integrate BMC's Patrol reporting tools with BGS's Best/1 analysis tools. The combined tools would let information systems managers detect and predict problems with business-critical servers and applications.

Observers say Patrol has become "a real force" in performance management, which is now the largest segment of the systems management market at $1.8 billion in annual sales. "But [Patrol] lacked the capacity planning aspect that BGS brings to the table," said Paul Mason, director of the enterprise systems management program at International Data Corp. in Framingham, Mass.

For example, Patrol does a good job reporting when several databases are experiencing problems, said Tom Ellis, a partner in computer risk management services at Arthur Andersen & Co. But users may experience slowdowns at the same time central operators learn about them.

By analyzing the same data historically, Best/1 will be able to identify circumstances that could affect service, Ellis said. The combination should help IS managers be more proactive, he said, "so they can dig deep into systems and applications to avoid problems before something fails."

Demand is soaring for tools to help IS managers maintain service levels for users, analysts said. Daily business processes rely on client/server messaging or resource planning applications, for example, and Internet or intranet access puts new stress on mainframe workloads.

The combination of BGS and BMC tools should help IS managers be more proactive, "so they can dig deep into systems and applications to avoid problems before something fails."
— Tom Ellis, Arthur Andersen

"We're trying to enter this market as a leader by adapting 20 years' worth of expertise in modeling algorithms" from Waltham, Mass.-based BGS, said Wayne Morris, director of corporate strategy at Houston-based BMC.

First, BMC will integrate existing products so Best/1 can use data collected by Patrol, Morris said. Eventually, a common architecture will evolve so that both tools use common agents, collection routine and console.

When that happens, an IS group can eliminate redundant functions and consolidate vendor support, said Bob Balassi, director of client services at Maryville Data Systems, a systems integrator in St. Louis.

"From the same data, Patrol can watch thresholds for managing events and optimizing performance, while Best/1 builds a baseline for predicting trends," he said.

But to monitor service from end to end, BMC must look beyond the mainframe, midrange and distributed servers, Mason said.

To do that, BMC partners with enterprise management framework leaders such as Computer Associates International, Inc., Hewlett-Packard Co. and Tivoli Systems, Inc. □

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The demand for device driver portability between operating systems and host platforms, combined with increasing requirements for intelligent, distributed I/O processing has led to the development of the Intelligent Input/Output, or I$_2$O specification. BMC Software and Intel Corp. are working closely with the I$_2$O Special Interest Group (SIG) to bring I$_2$O-compliant technologies to market, including integrating PATROL Management solutions with the Intel i960RP I/O processor.

"The importance that the Intel/BMC relationship brings to the market is that BMC innovation in I/O technology naturally makes them a leader in this collective new I/O-centric industry," states Alan Steinberg, Director of New Business Development, Connected P.C. Division at Intel. "Currently we have companies coming in from the desktop and from other areas of the industry that don't necessarily have the Enterprise experience BMC Software has to deal with the type of I/O that is needed in what could be called the new 'open mainframe' world."

Steinberg envisions a world where Microsoft will provide the main operating system, Intel will provide the hardware architecture and BMC Software will contribute the key I$_2$O-compliant management technology. BMC Software's role will be to help architect what Steinberg calls the "highly available, highly manageable open system mainframe" on the I/O space.

Bob Beauchamp, Vice President of Strategic Marketing and Corporate Development for BMC Software, agrees. "The pervasiveness of the i960 chip in the Windows NT and NetWare environments, combined with BMC Software's PATROL technology, will empower customers with unprecedented management and monitoring capabilities from the application to the motherboard."

Clearly, the ability to gather statistics regarding I/O is a great step forward. The PATROL Application Management Suite completes the picture by correlating I/O statistics with the applications that are utilizing the I$_2$O components or sub-system. This allows unprecedented optimization capabilities, such as automated load balancing, cache reallocation, and the rerouting of network traffic. All of these capabilities can be performed on demand and are based on the performance requirements of the applications.

Currently, no two vendors come as close as Intel and BMC Software in providing this comprehensive approach to I/O processing and manageability.

"We've moved into a new paradigm where I/O is as important as the central CPU technology," states Steinberg. "This shift will allow BMC to proliferate its management product line in the open systems environment. Pairing Intel I/O technology with PATROL is just the very beginning. It's the first product of many, as this new I/O-centered technology emerges into the marketplace, and we think it's going to be an exciting ride."

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WATCHING THE DETECTIVES

Profiling systems can be used, for example, to catch crooked cops or flag insurance frauds

System: Computer-Assisted Passenger Screening (CAPS)

Who it identifies: Potential airline terrorists

Sample criteria: Method of payment for tickets, frequent one-way trips, data gathered from federal agencies and other "readily available" information

Sample users: Northwest Airlines, which developed CAPS, and U.S. Airways*

System: Products from HNC Software, Fair, Isaac & Co. and others

Who it identifies: Credit-card users likely to file bankruptcy, bad credit risks

Sample criteria: Participation in marriage or psychological counseling, purchase of prescriptions, use of resume services, frequent low-dollar gasoline charges **

Sample users: First Union Corp., Mellon Bank Corp., First USA Bank and most major credit-card issuers

System: Medical Information Bureau reports

Who it identifies: Forgetful insurance applicants, potential frauds

Sample criteria: Participation in "hazardous" sports, data from prior applications

Sample users: Prudential Insurance Company of America, Aetna U.S. Healthcare, Inc. and 600 other major U.S. and Canadian insurers

System: BrainMaker

Who it identifies: Police officers likely to commit brutality

Sample criteria: Recent divorce, history of missed work, incidents in which weapon was lost, number of crashes in patrol cars

Sample user: Chicago Police Department***

* The FAA will require that all major airlines use CAPS this year
** Software can be customized so not all sample criteria are tracked by sample users
*** Created the program but stopped using it

Critics target electronic profiling

CONTINUED FROM PAGE 1

rights, lead to charges of discrimination and ensnare innocent people.

The American Civil Liberties Union (ACLU), for example, worries that the airline industry's new Computer-Assisted Passenger Screening (CAPS) system unfairly singles out flyers of Middle Eastern descent for extra scrutiny.

CAPS software was intended to help spot potential terrorists. It is a security remedy recommended by a White House commission assembled after the explosion of TWA Flight 800 in July 1996. The Federal Aviation Administration (FAA) will require the installation of CAPS systems at all major U.S. airline terminals this year.

But since Jan. 1, when CAPS went from pilot stage to live use at Northwest Airlines, US Airways and other airlines, the ACLU has gotten "scores of complaints" from passengers, most of whom cried racial discrimination, said Greg Nojeim, an ACLU lawyer in Washington.

The U.S. Department of Transportation also is investigating 46 complaints filed since last spring.

"A profile that targets as potential terrorists people who travel frequently to a country on the State Department's terrorist list would have a disparate impact on people who trace their national origin to that country," Nojeim insisted. "Who, after all, visits Syria? It's not a big tourist destination. Not a lot of business travelers go there. But people do visit their families."

Hassan Abbass, a U.S. citizen born in Syria, and his wife last July filed a $4 million lawsuit against US Airways alleging discrimination and a subsequent "humiliating" luggage search. The Cleveland couple was stopped apparently because of multiple trips to Syria, the suit claimed. The case was later dropped, and each side agreed to pay its own legal fees. But the ACLU, among others, expects many more cases like it.

An FAA spokeswoman denied that race, religion or ethnicity are included in CAPS criteria; that would violate federal law. But she declined to say what factors are used, saying terrorists would learn how to skirt the system.

TOP SECRET

Profiling systems essentially use aggressive data mining and artificial intelligence techniques to identify people who may be bad business or security risks. The selection criteria are often kept secret.

The systems stir a classic debate. In the big picture, most people agree that acting to stop crime or save lives is good. But at the pixel level, few people are in favor of, as one objector put it, "having our lives dissected and stored in a database somewhere."

"I'm for [CAPS]. I really am," said Myriam Bossuyt, whose husband died in the Flight 800 crash. But Bossuyt, who lives in Trumbull, Conn., objects to the FAA's secrecy about CAPS data. "People want to know what's going on behind the screens," she said.

Meanwhile, some banks and other lenders use credit-risk evaluation software that picks out credit-card charges for, say, marriage counseling and an employment agency in the same month. The thinking is that a troubled marriage combined with a lost job can signal coming bankruptcy or, at least, serious money problems, said a spokeswoman at HNC Software, Inc., a profiling software vendor in San Diego.

There is no doubt that profiling systems can help save money, reduce credit risks and boost profits for corporate America.

For instance, First Union Corp. raises rates and late fees for bank customers whose profiles show increasingly "bad" behavior, such as months of missed payments, said Chris Hamilton, a portfolio management coordinator at First Union in Charlotte, N.C.

And after racking up a massive $688 million loss from credit-card fraud and uncollectible debt last quarter, Sears, Roebuck and Co. is rolling out anti-fraud software from HNC Software. In pilot tests since last September, the system has already helped Sears identify 20% more purchases by deadbeats and credit-card thieves than it had before, said Bill Redmond, director of credit fraud management at the Hoffman Estates, Ill.-based retailer.

Yet information systems managers must take care, computer ethicists said, to stop data mining applications from becoming intrusive as they grow. That's a particular danger when internal customer information is cross-referenced with data from other sources, such as court records or demographic databases.

Profiling systems, though well-intentioned, can produce a privacy backlash.

The Chicago Police Department built a program in 1994 to predict which officers might engage in police brutality, which has been a problem in Chicago. The system tracked several factors, including whether an officer was recently divorced. But the project was stillborn: Members of the Fraternal Order of Police union complained the program was too intrusive, and it was canned.

Experts in computer ethics say there are several ways to encourage responsible use of profiling systems. One is to make sure a red flag in a computer doesn't trigger an automatic action against people. Actions should only be taken after further review by a human.

Another is to make sure end users are trained to understand the sensitive legal issues and to recognize that a computer's conclusions aren't gospel.

"There's a tendency to put more credence in [computers] instead of personal judgment," said Doo Gotterbarn, a computer ethics expert at East Tennessee State University in Johnson City, Tenn.

The Transportation Department recognized potential trouble with CAPS. An agency study last October said airport workers who use CAPS must be specially trained in civil rights issues. The goal is to act on CAPS results "without any embarrassing, disrespectful or stigmatizing conduct," the report said.

Gotterbarn said programmers should make sure user interfaces on profiling systems warn that the results aren't absolute truth "but probabilistic at best." □

Finding fraud

Electronic-commerce companies have complained of the following swindle: Shoppers who place their orders, receive merchandise and then dispute the sale, claiming that their credit-card numbers were used fraudulently. Merchants then must give refunds and swallow the costs of the chargeback.

Now several vendors of fraud-detection software offer products designed to do real-time credit-card checks over the Internet, which may make electronic-commerce sales less of a crapshoot.

IVS Fraud Screen, a detection service from CyberSource Corp. in San Jose, Calif., uses artificial intelligence to assess how likely it is that a proposed online transaction is crooked.

Criteria such as the amount of sale, time of day and IP address are analyzed with traditional data. They are compared with a database of known fraudulent transactions to produce a fraud score.

Suspect sales are flagged and studied further, said Steve Klebe, vice president of business development at CyberSource. — Kim S. Nash

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AGENDA

9:00-12:20 MORNING SESSION

- **Welcome and Introduction** *Vicki J. Brown, Senior Vice President*
- **Mapping the Route to Opportunity** *Frank Gens, Senior Vice President, Internet Research*
- **The Wintel Empire at the Crossroads** *Dave Vellante, Senior Vice President, Systems, Software and Storage Research*
- **Telecom Colloquy: Roadblock or Fast Track?** *Gigi Wang, Senior Vice President, Communications Research*
- **The Wired Market: Redefining Business and Industry** *John Gantz, Senior Vice President, Personal Systems, Collaborative Computing, and Services Research*

Session A 1:30 - 2:10	Session B 2:20 - 3:00	Session C 3:10 - 3:50
TRACK 1: Internet		
Internet Commerce — Where's the Money? Caroline Robertson	The Firewall is Burning! Gaining Market Share from the Intranet and Extranet Build-Out Michael Sullivan-Trainor	In Search of the Jetsons: Stalking the Wired Consumer David Card
TRACK 2: Personal Systems		
The PC Market of Tomorrow Bruce Stephen	PC Technology Roadmap Sean Kaldor	Changing the PC Channels Tony Amico
TRACK 3: Systems		
HP's Attack on the Enterprise Dan Kusnetzky	Clustering the Enterprise — Unix and NT Take on Legacy Systems David Floyer	PC Servers: Are They Ready for Primetime? Susan Franklin
TRACK 4: Software		
The New Millennium Software Industry Tony Finnell	Supply Chain Automation: Change and Opportunity in the Global Applications Market Clare Gillan	World Wide Java Evan Quinn
TRACK 5: Communications		
IP Meets the Enterprise: The Rise of Public Network Infrastructure Lee Doyle	IP Centric Networks: Future or Fantasy for Voice Mark Winther	The New LAN Backbone: Bandwidth & Beyond Mark Leary
TRACK 6: Services		
Profiting from the Monthly Grind in Services Mike Moienovsky	Solution Delivery: Lessons from the Elite Paul Johnston	Getting Ahead of the Demand Curve for Mission-Critical Service and Support Trent Gore

4:00-4:45 Top Headlines for 1998 *John Gantz, Moderator*

COMPUTERWORLD

QUICK STUDY

Hot trends & technologies in brief

Object-enabled databases

DEFINITION: Object databases store information as objects that have built-in ties to other pieces of data. They are mainly used in multimedia applications or systems that involve complex data, such as financial trading. Such applications could grind to a halt on relational databases, which store data in tables that have to be joined together to answer complex queries. Hybrid object/relational databases blend support for multimedia forms of data and object programming techniques with the familiarity of relational technology. The hybrids still map all of the data into relational tables, but they can index and search for information based on its objects.

Objects still face a tough sell

By Craig Stedman

DWARFED BY RELATIONAL TECHNOLOGY, object databases continue their long march toward widespread user acceptance.

Meanwhile, relational database vendors such as Informix Software, Inc. and Oracle Corp. are pushing hybrids that graft object database capabilities on top of relational rows and columns.

Hybrids should handle the same data complexity as pure object databases can, says Mitch Kramer, an analyst at Patricia Seybold Group in Boston. But users may have to trade some speed for the comfort of keeping their relational underpinning, he says.

AT ISSUE
Performance vs. Ease of use

For now, the outlook for both types of databases remains hazy.

Pure object databases still make up just a sliver of the overall database business. "It's a teeny-tiny market," says Carolyn DiCenzo, an analyst at Dataquest in San Jose, Calif.

SWEET SMELL OF JASMINE

But object databases finally have a vendor bigfoot on their side: Computer Associates International, Inc., which shipped its long-promised Jasmine software in December.

And the Internet's mix of multimedia and the need for blazing-fast data access gives object databases a shot at electronic commerce and other applications that aren't yet wedded to relational databases.

For example, Incredible Card Corp. in Hicksville, N.Y., uses Jasmine to run a service that stores medical records, fingerprints, images and other personal information about children. Parents who sign up get smart cards that can be scanned in emergency rooms to display the information.

Searches of the company's national Jasmine-based database take less than two minutes, says Mark Basile, CEO at Incredible Card. Basile also tested relational databases, "but nothing came close" to Jasmine, he says.

Nonetheless, it could take two years for CA to see some serious revenue from Jasmine, says Joshua Duhl, an analyst at Stillpoint Consulting in Arlington, Mass. And it is the only pure object database vendor that is aiming at a broad market instead of seeking out niches.

The object/relational hybrids provide some of the benefits of objects without forcing users to turn away from familiar relational techniques.

But the object/relational products haven't gotten off to an auspicious start.

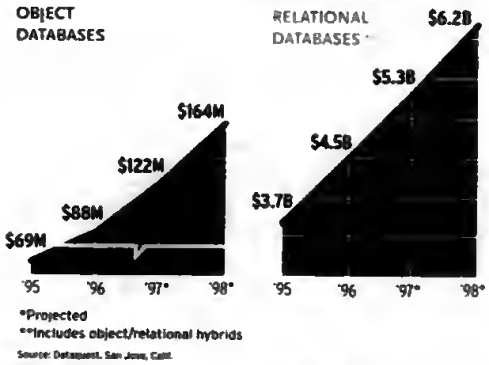
Oracle, after years of talking about objects, ended up tacking relatively limited object capabilities onto its Oracle8 software.

And for its part, Informix overhyped its Universal Server before the software was really there, giving the whole object/relational concept a black eye in the process. □

QUICK STUDY ONLINE For links to reports, books, organizations and vendors, go to: *www2.computerworld.com/home/online9697.nsf/All/qs_objectdblinks*

TWO DIFFERENT WORLDS

Worldwide sales of object databases have a long way to go to catch up to and relational databases



*Projected
**Includes object/relational hybrids
Source: Dataquest, San Jose, Calif.

PROS
- Easier and more natural storage of objects
- Fast performance on complex applications

CONS
- Lack of experienced developers and tools
- Steep learning curve for relational users

PROS
- Users can add objects without changing familiar base technology
- More mature tools for development and management

CONS
- Have to force-fit objects into relational tables
- Object-to-relational mapping could hurt throughput

FAQ: Market performance

Q: How stable is the object database market?

A: Vendors such as Gemstone Systems, Inc. and Ontos, Inc. have largely given up on selling object databases and have tried to reposition their products as application servers or middleware. Most of the other pure object companies have sought out specific niches, and research firm International Data Corp. in Framingham, Mass., predicts that more shakeouts and consolidations are likely.

Q: How big is the market for object/relational databases?

A: Object/relational sales are hard to pin down because Oracle and Informix Software just released their hybrids last year and aren't separating shipment figures from their conventional relational products.

But the hybrid software is expected to eventually outsell pure object databases because of the clout of the vendors in the object/relational market.

Q: How are object/relational databases being sold?

A: Oracle packages its object capabilities as optional add-ons to its Oracle8 software, released last June. Informix's object/relational technology originally was a separate database called Universal Server. After a repackaging in November, the object features became the Universal Data Option to Informix's Dynamic Server relational database. IBM supports multimedia data extensions in its DB2 Universal Database.

Q: What kinds of applications are object databases used in?

A: Vertical markets such as telecommunications, financial services, health care and transportation traditionally have been the most receptive to object databases, according to Stillpoint Consulting in Arlington, Mass.

Object databases are also being aimed at electronic commerce, online catalogs and other World Wide Web applications that involve large amounts of multimedia data.

■ *Are there technologies or issues you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stefanie McCann at* **stefanie_mccann@cw.com**

OPINION

Blowhards, Inc. I'm slumped over my notebook, weakened by prolonged exposure to industry analysts.

Around me in the over-air-conditioned ballroom are a couple hundred IT folks, their eyes also glazed by the stupefying stream of buzzwords. Recognize this scene? If so, count yourself among the many participants in the booming business of blowhards. Entire content-free conferences are now devoted solely to analysts talking to one another about their own analysis, and corporate IT paying untold millions to listen. Having sat through a number of these confabs now, I've come up with the foolproof formula:

- For starters, provide a conference materials binder that weighs at least 10 pounds and won't fit in anyone's briefcase. Offer to ship it home for an additional fee.
- Make sure your analysts lard their cheesy PowerPoint slides with meaningless new buzzwords such as "archistructure" but never define anything. Use $10 words such as "concatenate" and "bifurcate" to make common-sense predictions sound extraordinarily clever.
- Dispatch any specific audience questions with incomprehensible answers such as "The infrastructure capabilities should be delivered with a consistently high-quality methodology." That'll shut everybody up.
- Qualify every other statement with a thoughtful pause, a slight frown and the cautionary phrase, "Depending, of course, on the needs of the business."
- Recycle your most complicated-looking graphics and charts from last year, but add new boxes, imaginary acronyms and dotted lines circling the perimeter for no apparent reason. Toss in an Internet "cloud" to illustrate "the new reality."
- Refer to employees as "human capital," and blame the IT staffing crisis on the human resources department. Oh, and ridicule programmers whenever possible, because they know better than to waste their time at these conferences.

If only I could say the same.

Maryfran Johnson, *executive editor*
Internet: *maryfran_johnson@cw.com*

LETTERS

Mac users bite both sides of the Apple

In the nearly 20 years that I have worked in the computer industry, I have never encountered an article ["4EVR MAC"] as nasty and uncalled-for as the one concerning Apple in your Dec. 8 issue.

I found the comments about Mac users to be personally insulting, and as an Apple shareholder, I find *Computerworld*'s participation in this bashing of the company most upsetting. All the members of my family are Macintosh users, and I find it particularly irksome that a widely read and well-respected publication would publish an article so insulting to so many of its readers and their families.

I can't help but wonder what *Computerworld* intends to achieve or hopes to gain by printing nasty, puerile sarcasm in place of objective reporting of the facts.

Jonathan M. Lehr
South Riding, Va
jlehr@ix.netcom.com

Although I am a Windows user, I used to like Macs, and I really don't care for the religious issues between the two operating systems.

However, I did find it humorous that the California license plate at the top of the article had expired three years ago: Just like Macs maybe? Then again, when [the upcoming MAC OS] Rhapsody comes out for Intel, I'll pick up a copy and give it a go.

James Snyder
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I think that anyone who can use any computer to make his job easier should use whatever is best. In most instances, the debate about Windows and Macs is from the users' perspective. Perhaps someone should look into the aspect of Macintoshes from the systems administrators' view, especially in a mixed operating system shop and networking shop.

I've had experience with a wide range of platforms, including Unix, DOS, Macintosh, mainframes and several others in a work or production environment. In my experience, the most difficult platform to integrate into those types of environments was the Macintosh. Even in a Mac environment, the Mac was difficult to maintain and troubleshoot for problems.

Frank Skorupski
Logica, Inc.
Lexington, Mass.
skorupskif@logica.com

As one who prefers to use a Macintosh, I was disturbed by the derisive tone of your In Depth feature in the Dec. 8 issue of *Computerworld*. How ever much the author was striving for humor, the portrayal of anyone who uses a Macintosh as a fanatic or a "Mac Moonie" was insulting and demeaning to your magazine.

I use a Mac because it is the easiest way for me to complete my work, and in comparison with the PCs used by co-workers, it is far more trouble-free. My Mac fits into an NT network with minimum fuss and requires little support.

It would appear that the scathing antipathy of enterprise IS toward the Macintosh (conveyed by your newspaper) and the subsequent desire to purge the world of Macs is itself a sign of an unhealthy fanaticism.

> The portrayal of a Macintosh user as a fanatic was insulting

Bill McGuire
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Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

For many, Digital died long ago

Sharon Machlis

The Digital Equipment I remember — the one that everyone in the computer industry had to pay attention to — disappeared long before Compaq decided to DEC its halls.

For me, the final moment came when Digital shut down its Maynard, Mass., headquarters, located in a renovated old mill building.

The Mill (the capital "M" was always understood) symbolized not only Digital, but also the changes it helped bring to Massachusetts. Initially built for the industrial revolution, the Mill first shut down as the number of manufacturing jobs declined. Founder Ken Olsen and friends, seeking a place to set up shop for their new technology venture, moved in.

The complex was then beautifully restored, with exposed brick walls and wood floors. Buildings were connected by a complicated network of hallways and passages. The site used an unfathomable building-numbering system that I always suspected was designed to test would-be workers' navigational skills. Engineers there said that when they had tough technical problems to hammer out, sometimes they'd just wander the Mill labyrinth, thinking.

The company always seemed befuddled when great products failed to generate great profits.

You couldn't do that in a typical glass-and-steel box.

It was a special environment for a special company. For even in a technology-driven era that favored performance over things such as compatibility or open standards, Digital stood out as an engineering-driven enterprise.

It was easy to be mesmerized by technology. I still remember one of my first peeks at a Digital desktop computer, back in the mid-'80s. It was elegantly designed and — in an era when 1-MIPS bookcase-size computers were front-page news — fairly screamed in performance. It seemed so impressive.

But the model ultimately bombed, overpriced for its market and unable to run much standard software. It was an early lesson in the danger of *Field of Dreams* marketing. If you build it, even if you build it best, they won't necessarily come to buy. There's a lot more to selling computers than making good ones.

Take Alpha, which, with its lightning-fast number-crunching, ought to be thriving — at least in markets that demand top-notch performance, such as engineering. Intel and its clones seem to be winning the lion's share of new business, even in those arenas. Whether Digital's problem was marketing, timing, lack of partnerships or all of the above, the company always seemed befuddled when great products failed to generate great profits.

As the desktop revolution passed Digital by, ever-rumpled Olsen departed to make way for "more professional" management. Digital's new CEO, Robert Palmer, looked at the books and decided the Mill was too costly to keep. But by that time, Digital had already slid from the first tier of U.S. computer makers.

Even without the Mill, Digital's history remains some great technology, initially perfectly positioned, but not changed quickly enough as the market moved on. The PC/workstation systems that doomed Digital's minicomputers followed much the same path that Digital and others used to siphon off mainframe growth. We'll see if Compaq, Dell and company will learn from that when the next wave of computing rolls around. □

Machlis is a Computerworld senior editor. She covered Digital for a Massachusetts newspaper from 1983 to 1989. Her Internet address is sharon_machlis@cw.com.

Mother of invention, indeed

Michael Schrage

A journalist acquaintance of mine no longer types her stories; she tells them to her computer. Her repetitive strain injury (RSI) got so painful that rather than type, she uses IBM's voice recognition software for data entry. It works for her.

She's now productive in a way that wouldn't otherwise be possible. Not incidentally, her company paid for all the voice recognition technology: Large media companies are very nervous about RSI lawsuits.

Curious, I asked around and discovered that RSI has become one of the key market drivers for getting voice recognition technologies into the workplace. Between "webrowsing" and scanning older marketing literature, I found that initially, RSI was barely mentioned as a reason to buy. It's funny — and bizarre — how "new" disabilities can create new markets for digital innovation. It's also ironic that while computer keyboards are widely blamed for the purported epidemic of carpal tunnel syndrome and RSI, those very epidemics can be effectively "treated" through next-generation PC technology.

This phenomenon raises interesting and potentially important IS questions. Will disability-driven computer innovation become more important over time? Or is voice recognition technology just a litigation aberration? Nobody in my office who doesn't have RSI has switched from keyboard to voice (frankly, I can't yet imagine dictating a column to my Mac). However, what would happen if, say, a third of those people decided that dictation was the way to go . . . and gee, their wrists had begun to hurt? Suppose I changed my mind and wanted to talk my columns into existence. Would I pay? Or would my editors? Or do those questions become moot as, ahem, Microsoft builds more functionality into Windows?

How new technologies infect and spread through the enterprise fascinates me — and should terrify IS. After all, the PC explosion can be traced to individuals and department managers who went out and purchased computers in spite of IS. Desktop publishing and desktop presentation technologies are also multibillion-dollar markets that snuck into corporate IS and now demand maintenance and support.

So is it that far-fetched to imagine that the Americans with Disabilities Act and the specter of litigation may become an important vector for technology transfer? I don't think so. I know organizations that have standardized on employee review software, in part to assure that if and when someone gets fired, all the necessary documentation is rigorously standardized to deter a wrongful dismissal suit.

The point isn't that litigation and regulation now drive new technology adoption — although that reality is indeed underappreciated. It's that IS, despite recent trends in standardization and centralization, is now more in the technology transfer business than the information management business.

Will disability-driven computer innovation grow more important over time?

You look at the rise of Visual Basic; of content management; of sales automation technology — and, yes, they all are about processing information. However, they are really about getting people in companies to change their behavior — a skill that isn't an IS strength.

In other words, voice recognition technology isn't just a data-entry technology; it's the symbol and substance of why IS now spends more time managing new expectations than managing new technologies.

For reasons regulatory and legal — as well as organizational, cultural and political — IS increasingly will be forced to expand the portfolio of technologies it must manage. Yes, let's all moan about the programmer shortage. But it'll be maintenance and training that create the most interesting bottlenecks in the enterprise. □

Schrage is a research associate at the MIT Media Lab and author of No More Teams! *His Internet address is schrage@media.mit.edu.*

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Briefs

New SIM president

John Stevenson, vice president of information technology management at Bristol-Myers Squibb Co., based in Plainsboro, N.J., has been inducted as president of the Society for Information Management (SIM). Stevenson, who was vice president of IT at Lennox International, Inc. and Dr Pepper/Seven Up, Inc., both in Dallas, will head up the Chicago-based user group of 2,700 senior IT executives.

College outsources IT

Texas Southern University in Houston has outsourced day-to-day management of its information technology to Malvern, Pa.-based Systems & Computer Technology Corp. under a five-year contract for $11.9 million.

$7M licensing deal

Flint Ink Corp., a Detroit-based manufacturer of printing inks for newspapers and directories, has signed a $7 million software licensing deal for Systems & Computer Technology Corp.'s Adage enterprise resource planning software.

Y2K Web site

The Electric Power Research Institute (EPRI), a Palo Alto, Calif.-based research facility for electric utilities, launched a year 2000 project to share information about technical issues in embedded systems. EPRI's World Wide Web site (*www.epri.com/year2000/*) has more information.

Reasons for canceling outsourcing deals

Base: 56 companies with revenue between $1 million and $100 billion

Source: Computer Economics, Inc., Carlsbad, Calif.

Recruiting outside IS

▸ *Consultant trains nontechies to be programmers*

By Thomas Hoffman

Pat Rimes (left) and Annette Carpenter [illegible] training [illegible] are [illegible]tants

RICHMOND, VA.-BASED consultancy Broughton Systems, Inc. has come up with an offbeat approach to the IT labor drought: Train liberal arts graduates and career-changers to become mainframe programmers.

Broughton's Information Technology University is a two-year apprenticeship that mixes 10 weeks of classroom instruction with hands-on programming at its Fortune 500 customer sites.

The arrangement is a boon for Broughton customers such as Owens & Minor, Inc., a medical supplier in Richmond that has taken on 12 of the consultant's 35 graduates during the past three years. Owens & Minor uses the graduates for entry-level programming work, such as adding customer names to a CICS report, at a starting pay rate of roughly $30 per hour.

That has allowed Owens & Minor's internal 50-person application develop-

Training, page 40

Preparing the next generation

▸ *Programmer gets local children excited about computing*

By Julia King
PHILADELPHIA

PHILADELPHIA INQUIRER

Pete Doyle teaches neighborhood children valuable computer skills at his nonprofit organization

IT ALL STARTED for Pete Doyle when the computer programmer and "spoiled brat/suburban artist" volunteered to paint a mural on the graffiti-smeared walls of Won's Market in one of this city's toughest and poorest neighborhoods.

Within an hour, an 8-year-old kid named Joey showed up at Won's, wanting to help. Before long, Joey's five brothers also showed up. By midafternoon on that October day in 1994, more than a dozen neighborhood kids had come to learn how to paint and to help with the mural. Week after week, they kept coming back.

Then it got cold.

That's when Doyle, 47, moved inside to a local day care center and began teaching the kids about art, graphic design and eventually, computers. The kids get to keep those computers after completing six training sessions through Doyle's nonprofit Ogontz Avenue Art Co. (*www.dougweb.com//ogontz.html*).

In the past 3 1/2 years, 300 inner-city children, ages 8 to 18, have taken home refurbished PCs, all of which were donated by individuals and corporations, including Doyle's employer, Rollins Leasing Corp. in Wilmington, Del. And about 1,000 more children are on a waiting list.

Doyle, who works four 10-hour days per week at Rollins, teaches the art and computer training classes on Mondays and in the evenings at five different sites in Philadelphia.

"We teach problem-solving skills," Doyle said. "Kids are given problems that have to do with both painting and computers. We tell them that learning to think is a lot more important than getting a computer."

Students also learn computing fundamentals, such as Windows and DOS operating systems. Additionally, the children sign a contract agreeing to attend six training sessions, to keep a notebook, and to complete all homework.

But attendance and participation have never been problems, Doyle said. Most students are fiercely dedicated.

He recalled one evening when two children — who had to change buses twice to get to and from class — were caught in some drug dealers' cross fire on their way home.

"They ducked under a car and were all right," Doyle recalled. "But that night, I called

Programmer, page 40

YEAR 2000 PROBLEM

Feds worry telcos won't fix every bug

By Matt Hamblen
WASHINGTON

THE FEDERAL GOVERNMENT has a $3.8 billion year 2000 program under way but has no guarantee that the global voice and data networks it uses will be ready.

Neither does any private company.

Federal officials made some private-industry network managers at ComNet '98 uneasy recently when they confessed to a nagging uncertainty that the global telecommunications companies on which the federal government's wide-area networks depend won't come through on year 2000-compliance promises.

Representatives of the U.S. Department of Defense (DOD) and the U.S. Department of Agriculture (USDA) said that in general, the carriers they deal with work hard and have been honest about any problems.

But there is no way to completely test WANs — which might be linked by dozens of cooperating carriers — and no way to directly check the telephone companies, said Mike Tercy, a consultant at Global Management Systems, Inc. in Bethesda, Md., who works in

Feds, page 40

Training nontechies for IS

CONTINUED FROM PAGE 39

ment staff to focus on building electronic data interchange applications, said Jackie Vincent, director of application services for the nation's leading distributor of medical supplies.

"We've been fortunate that we've had those types of assignments available so that the [Broughton graduates] could be utilized effectively and at a cheaper cost to us" than the company's own staff, Vincent said.

When Broughton apprentices enter the program, they are paid an entry-level salary given to most liberal arts graduates in the Richmond area — $22,500 per year.

But periodic salary reviews "can almost double their pay within two years," said Dan Garfi, director of customer systems at Broughton Systems, a subsidiary of Personnel Group of America, Inc., in Charlotte, N.C.

GODFATHER CLAUSE

To keep its fledgling consultants from leaving for greener pastures, Garfi and other Broughton managers deliver what they call "the Godfather talk. We're going to keep developing them on our nickel, so we ask them to honor that," Garfi said. The suggestion: Stay with us, and you will benefit financially in the long run. Garfi said. So far, the approach seems to be working.

Broughton has lost only two of its 35 graduates over the past three years, and one of those left to pursue a professional golfing career.

Those constant salary reviews and pay increases are critical to keeping people such as Pat Rimes, a 50-year-old former industrial engineer who is married and has two elementary school-age daughters to support. Rimes, who was laid off from a job at a trucking firm in May 1996, joined Broughton last February after finding out about the apprenticeship program through a friend.

> Broughton's training and mentorship program "has allowed me to make a career change in ten weeks."
> – Pat Rimes
> Owens & Minor

"I had done some Basic programming for freight operations in my other career and was interested in this," he said.

Rimes has worked on Cobol and CICS accounts payable and replenishment systems applications since he started as an associate consultant working for Broughton client Owens & Minor last April.

Broughton's training and mentorship program "has allowed me to make a career change in ten weeks," Rimes said.

He said he hopes to reach his previous salary level as an industrial engineer "within a couple of years."

The apprenticeship has also helped Susanne Beasley, a 22-year-old health sciences graduate of James Madison University in Harrisonburg, Va., who "wasn't sure" what she was going to do after she received her diploma last May.

Beasley joined Broughton in July and began programming at a large manufacturing company in Richmond in September.

She said she is encouraged by her career path. She declined to identify the company.

"There are so many opportunities with Broughton and the parent company that I'm really happy with the decision I've made," said Beasley, who added that she hasn't been approached by any headhunters.

At least, not yet. □

Feds worry telcos won't fix Y2K bugs

CONTINUED FROM PAGE 39

network management at the DOD

The International Telecommunication Union of the United Nations recently began a coordination effort to address whether linked networks might be ready [CW, Oct. 27].

GETTING TOUGH

Still, the DOD is checking compliance of pieces of its network using a laboratory in the Pentagon, Tercy said.

"Within the Pentagon, there is enlightened leadership," he said. "People [in government] are being dead serious" about their own year 2000 projects, Tercy added.

And they are keeping as close an eye as possible on vendors and carriers such as Bell Atlantic Corp., which supplies a Synchronous Optical Network ring in the Washington area. "Nobody takes anybody's word that [those vendors] are compliant," he said.

Anne Reed, chief information officer at the USDA in Washington, said her agency is doing its part — checking network devices and sharing information to get ready.

In a review of the USDA's 3,700 network routers, the agency found about 900 that weren't year 2000-compliant and 87% required software upgrades. The remainder will be replaced.

And both Sprint Corp. in Kansas City, Mo., and AT&T Corp. in Basking Ridge, N.J., provide voice and data networks and services used by USDA, and both are "working hard" to get their networks ready, Reed said

The companies have committed publicly that year 2000 won't be a problem. But AT&T Chairman C. Michael Armstrong told reporters Jan. 26, "It's beyond my knowledge how well-prepared all networks are worldwide — I don't know."

IS IT ENOUGH?

The best incentive for carriers and other vendors to be ready is the fear of what will happen to them if they aren't, Reed said.

"In the end, this is a question of survival" for them, she said. "If they don't deliver business after 2000, they don't survive — that's a powerful incentive."

Still, James R. Painter, vice president at Science Applications International Corp., a systems integration company in Falls Church, Va., said, "I've observed a number of companies that will say anything [about their year 2000 readiness] just to get your business." □

Programmer prepares the next generation

CONTINUED FROM PAGE 39

them to say I understood if they didn't want to come back, but they did. Those kids came back and they got their computer."

Most of the computers the students receive are either 386- or 486-based PCs, which Doyle and other volunteers, including some information systems coworkers at Rollins, reformat with DOS and Windows 3.1.

In fact, the decision to send children home with the free computers was largely inspired by his information systems colleagues at Rollins, Doyle said.

"When I asked young programmers at work how they got into computers, they all said it was at home," Doyle said. "Their dad or someone else had brought home a computer, and that's how they got started."

Now, children in Doyle's program who bring home computers are having a similar impact on their families, said Gwendolyn Scott, principal at Prince Hall Elementary School, one of Doyle's inner-city training sites.

"Children work on the computers at home, and they do their homework on them," Scott said. "And parents tell us that not only do the kids work on the computers but that they get the whole family involved."

MASS APPEAL

Doyle's art and computer training work has had a similar impact at Rollins, according to Doyle's boss, Ron Fijalkowski, vice president of IS.

"When you talk to Pete and you see what his commitment is, you can't help but want to help, too," Fijalkowski said.

"He has gotten other employees on my staff to teach classes, which has [improved] the overall feeling of comradery. He has helped them feel good about themselves," he said. □

Car buying on the Web

By Stewart Deck

CHRYSLER CORP. Chairman Robert Eaton told the National Automobile Dealers Association last week that the Internet has fundamentally changed the way people buy cars and that U.S. automakers had better pay attention if they want to stay in business.

According to a recent survey conducted by market researcher Dohring Co. in Glendale, Calif., almost half of the people surveyed said they may use the Internet for their next car purchase. And more than 30% said they have already used the Internet to gather information on automobiles.

CHANGING MARKET

"The customer is going to [take] control of the [buying] process. And we're all going to salute smartly and do exactly what the customer tells us if we want to stay in business," Eaton said.

Eaton added that although the way people buy cars is changing, traditional automobile dealerships still have a place. "Customers need the infrastructure," he said. "You can't stuff a new car — or a trade, for that matter — through a fiber-optic cable."

But Dohring's latest survey may indicate that people are willing to do just that.

It found that one out of 10 survey respondents said they would buy a new car or truck using the Internet without ever taking it for a test-drive. Last year, only 4% of those surveyed said they would make such a purchase without test-driving the vehicle.

> "The customer is going to [take] control of the [buying] process."
> – Robert Eaton, chairman, Chrysler

Dohring's study also showed that consumers are becoming more aware of how to use the World Wide Web to buy a car. Consumer awareness of auto superstores such as AutoNation USA in Fort Lauderdale, Fla., and CarMax Auto Superstores, Inc., a subsidiary of Richmond, Va.-based Circuit City Stores, Inc., rose from 22% last year to 31%.

Purchases take place via these superstores without the usual price haggling. □

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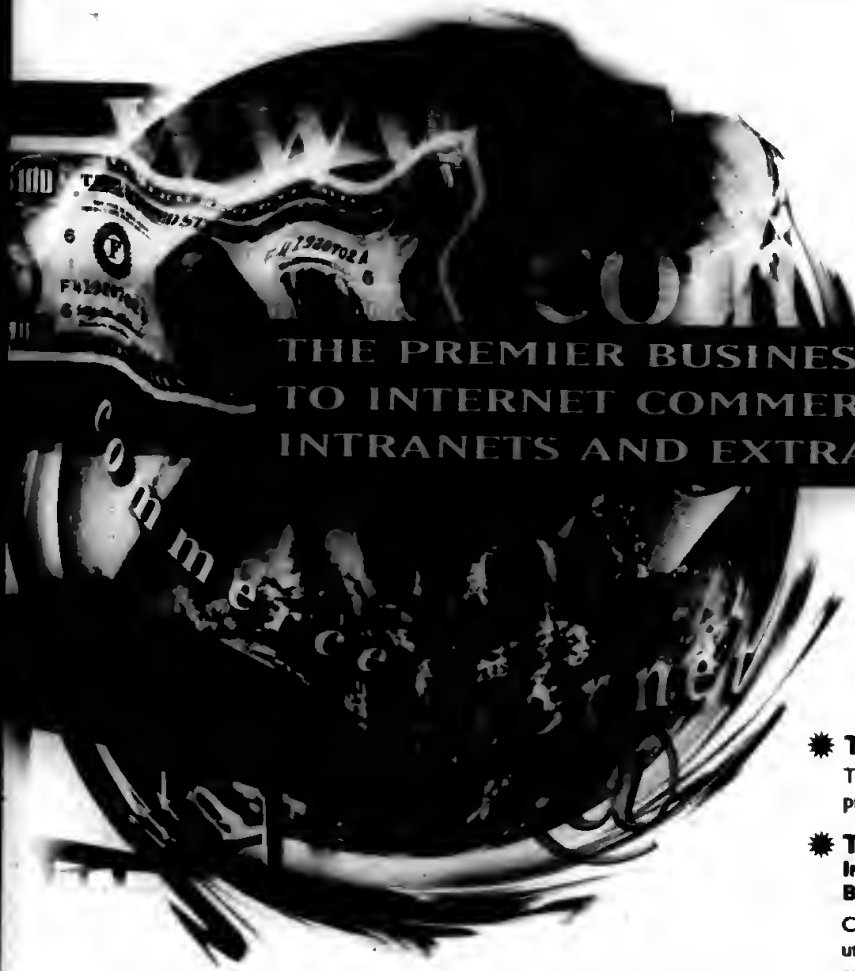

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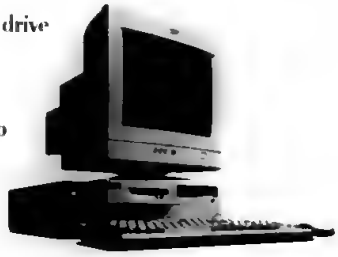

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Briefs

SURF'S UP

U.S. employees who access the Internet at work:

April 1997	15%
October 1997	20%

Base: 1,012 adults (April); 1,005 adults (October)

Plug-and-play firewall

Technologics, Inc. in Atlanta recently introduced its Interceptor Appliance, a preconfigured, platform-independent firewall. It continuously monitors network activity from any workstation and delivers electronic-mail, paging alerts and Simple Network Management Protocol traps to notify network administrators of problems. Available now, it costs $9,995.

Real-time alerts

Axent Technologies, Inc. in Rockville, Md., has released Intruder Alert 3.0 with security features that instantly protect systems against the most common security threats in Windows NT. Intruder Alert 3.0 uses a real-time manager to monitor the audit trails of distributed systems for "footprints" that signal suspicious activity. Intruder Alert can immediately notify administrators, shut down systems, terminate the offending session and execute commands to stop intrusions before they damage critical systems. It costs $1,995 per management console, $995 per server and $95 per workstation.

Smart-card wallet

VeriFone, Inc. has developed a smart card-based consumer "wallet" system based on the Secure Electronic Transaction 1.0 protocol. The VWallet is both software and a card and requires a PC-based card reader that verifies a user's identity for transactions over the Internet. VeriFone, a Hewlett-Packard Co. subsidiary in Menlo Park, Calif., developed the system with Compaq Corp. in Montgomeryville, Pa. Initial testing will take place in France.

Florists use Web to speed deliveries

▸ *1-800-FLOWERS to let clients chat*

By Sharon Machlis

A NATIONWIDE florists' network is hoping that a new Web-based communications system will speed orders to that special someone this Valentine's Day.

1-800-FLOWERS, Inc. recently started rolling out the system, an overhaul of an existing "store-and-forward" network. The old system used direct dial-up modem links that florists used to download orders.

The new World Wide Web-based network lets florists log in to a Hypertext Markup Language-based system over the Internet and receive orders and queries in real time from 1-800-FLOWERS. Florists can then ask questions about orders, such as whether delivery times can be altered or certain flowers substituted. They can check in several times per day as they did before or stay logged on all day.

"Valentine's Day is going to be a great test," said Paul Kleinau at Kitty's Flowers in Staten Island, N.Y., one of the first florists to use the system. "We love it. It's going to be keeping us in touch with 1-800-FLOWERS on a real-time basis."

Already, quicker answers to questions about orders have allowed Kleinau to send some 1-800-FLOWERS orders on trucks about to leave the shop instead of having to schedule separate deliveries, he said.

For 1-800-FLOWERS, the system means florists can check on orders faster.

Florists, page 46

PETER LAZAREVITCH

Does online training work? Maybe

By Tim Ouellette

CORPORATE TRAINERS could soon get a chance to see how online training really affects business results.

Docent, Inc. last week announced Internet-based training software that links course results with existing corporate databases, so companies can tie training to the bottom line.

Docent 2.0 lets users outline and create online courses by importing elements from different course development products or programs. The Docent server software sits on a World Wide Web server and delivers the course across the Internet or a corporate intranet.

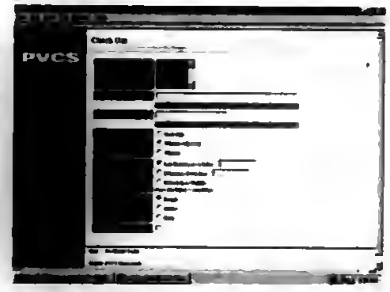
The Docent Reporter module then tracks each student's progress and can export that data to corporate databases from Oracle Corp., Sybase, Inc. or Microsoft Corp.

For example, a sales manager could see how sales were affected after the sales staff in one region received training on a new company product line.

There is growing interest among businesses in using the Internet as a training delivery mechanism, according to International Data Corp. (IDC) in Framingham, Mass. IDC analysts estimate that the Web-based training market could hit $1 billion by 2000.

Online training, page 46

Software lets coders work over the Web



InterSolv's PVCS VM Server lets users download code across the 'net and keep the same control and audit trails as in the office

By Gordon Mah Ung

AS A SENIOR SOFTWARE CONSULTANT at a Fortune 500 insurance company, Richard Ondrovic likes to test programming ideas when they come to him, even at 2 a.m.

But instead of throwing on clothes and driving to work, Ondrovic now fires up his home computer to test his theories. Ondrovic is one of a growing number of software developers who are bringing the code to where they are instead of going to the code.

Two upgrades from Intersolv, Inc. in Rockville, Md., and Rational Software Corp. in Cupertino, Calif., address the changing work habits of indi-

Software, page 46

LEGACY SOFTWARE

Tool offers to port host apps to Java

By Sharon Gaudin

CORPORATE USERS who want to move from aging mainframe systems to client/server systems or the Internet may get some much-needed help from a new conversion tool.

Relativity Technologies, Inc., a Triangle Park, N.C.-based application development company, has just released Rescue Ware, software designed to transform user interfaces, data, connections and program logic into object-oriented languages.

Vivek Wadhwa, CEO of Relativity, said Rescue Ware can take a Cobol application and turn interfaces into Hypertext Markup Language, Visual Basic, C++ or Java on the client side, and C++ or Java on the server side.

If the first round of conversion attempts, which are now under way, are successful, the tool could save users "an enormous amount of time and mon-

Tool, page 46

Tool offers to port host apps to Java

CONTINUED FROM PAGE 45

ey," said Karen Boucher, director of The Standish Group International, Inc. in Dennis, Mass. "I'm skeptical that anything could make this an easy project. But even if it starts the process, that's a good thing."

"We're trying to get off the mainframe, and this could help us," said Farrokh Sinai, a programmer at U.S. Fidelity and Guarantee (USF&G) in Baltimore.

Rescue Ware is a full-featured development environment and repository that runs on Windows NT or Windows 95 machines. Users download individual mainframe applications and import them into Rescue Ware, which scans the applications and checks for problems such as missing files or programs.

The program displays the applications in graph and diagram forms that let the user mine the application and break it into chunks to be converted to C++ or Java components. Interest rate computations, for example, could be made into one component, and inventory counters could be another.

Once that's done, the new application is dropped into a runtime environment, such as Borland International, Inc.'s JBuilder or Microsoft Corp.'s Visual C++, to be tested and recompiled.

"This is where the work is involved," Wadhwa said. "But once you decide what portions you want to be components, it generates that into code for you. You're pointing and clicking, not writing code."

TOO GOOD TO BE TRUE?

Sinai said he is in the process of converting two applications into Java but hasn't yet broken up the applications into components.

"From the beginning, this sounded too good to be true," he said. "But we couldn't pass it up in case it was true."

He also said Rescue Ware could save USF&G $5 million to $10 million in annual mainframe support costs if the company can get off the old system quickly.

"We're kind of half pregnant at this point," he said. "We have stuff on mainframe, and we have stuff on client/server. It's too much to support both." □

RESCUE ME

Relativity Technologies' conversion tool makes it easier to transform mainframe applications into client/server programs

What: Rescue Ware

When: Shipping now

Price: $15,000 per workstation

Coding needed: None

Languages: C++ and Java on server; HTML, C++, Java and Visual Basic on client

Platform: Windows NT and Windows 95

Florists use Web

CONTINUED FROM PAGE 45

said Norman Dee, webmaster at the company. For example, florists are encouraged to automatically confirm order deliveries over the system. If they do, they receive 10 cents back on the order. (Local florists pay 50 cents for each order they receive from 1-800-FLOWERS.) So when consumers call 1-800-FLOWERS to find out if a delivery has been made, the information is already in the system, and it is easy for florists to answer customers' questions.

CHATTING WITH FLORISTS

Westbury, N.Y.-based 1-800-FLOWERS also is adding electronic mail and chat capabilities to its system. That will let florists communicate with one another about design, marketing and business. The company plans to offer computer-based training and lectures as well.

And by Mother's Day, the company hopes to test chat-based customer service. The idea: Let consumers log on to the 1-800-FLOWERS Web site (*www.1800flowers.com*), go to a private chat room, ask about ordering and receive a real-time answer from a 1-800-FLOWERS customer service representative.

Consumers can E-mail questions now. But even with a usual two-hour response time, many time-pressed people end up calling with their questions as well, said Donna Iucolano, director of interactive services. That means two different representatives are answering the same question.

With 40% of 1-800-FLOWERS customers seeking same-day delivery, valuable time can be saved by offering real-time answers to consumers who are about to place an order, Iucolano said. The chat software is from EShare Technologies, Inc. in Commack, N.Y.

Kleinau said he hopes to experiment with chat and other features after the Valentine's Day crush eases.

"I see so much possible growth as I get more used to it," he said. "It's a chance for florists [on the network] to keep up with each other." □

Does online training work? Maybe

CONTINUED FROM PAGE 45

But the lack of paper quizzes, reports and other methods of tracking students makes it difficult to see if online training affects how workers do their jobs.

MicroAge, Inc. put online training to the test by developing 30 courses using Docent's new software. And though the courses are in their early stages, managers said they can see some increase in sales productivity for sales groups that took the courses.

"No one in sales will do anything without motivations," said Peter Rourke, director of the Category Solutions/Intranet group at the Tempe, Ariz.-based computer reseller. "And if they now know they will be able to better sell a major product, then they will take the time" for the course.

Analysts said Docent isn't the only training software vendor with a tracking system. But it is the only one that supplies standards-based links to common business databases.

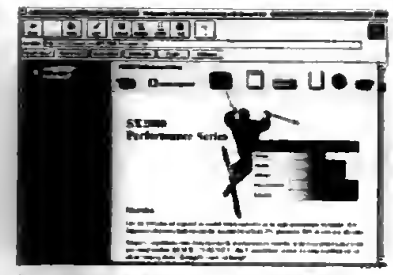
With Docent, "we could see if service calls regarding our products have fallen because of the training our field service people have had," said Angelo Micheletti, a senior technical trainer at Documentum, Inc. in Pleasanton, Calif.

"Companies are beginning to link their training directly to business needs. So training groups need to prove to the powers that be that training is making a difference," said Christianne Moretti, manager of information technology training research at IDC in Toronto. "[Docent 2.0] could possibly show them whether they have gotten there yet."

Another benefit is that poor business results let trainers quickly react to courses that aren't having any impact and make changes.

Palo Alto, Calif.-based Docent (formerly Stanford Testing Systems) initially has targeted the package at sales, help desk and customer service departments. That's because typically these groups have structured measurement systems in place that make it easier to tie training data to business performance.

Docent 2.0 runs on Windows NT or Sun Microsystems, Inc. Solaris Web servers and is priced per developer seat and Web server, not per student. Pilot programs start at $35,000, and enterprise rollouts begin at $150,000. □



Docent tracks training results and links them with business performance

Software lets coders work over the Web

CONTINUED FROM PAGE 45

vidual developers working on group projects by letting them work over the Internet and still keep the same control and audit trails they have in the office.

"It's an answer to the need," said Dick Heiman, research manager of application development at International Data Corp. in Framingham, Mass. "More and more software is being developed in distributed workgroups."

Intersolv's PVCS VM Server and Rational's ClearCase 3.2 add Internet capabilities to the normal functions of software configuration management applications such as tracking changes and documenting and communicating the status of projects.

But the ability to download code across the Internet or an intranet using a browser while remaining secure is the biggest advance for VM Server, according to Heiman. Once developers are done with the code, it is returned to the server through the browser, Ondrovic said.

CLEAR CASE FOR USE

Rational Software also has tweaked ClearCase 3.2 to add development over the Internet and intranets by allowing users to take "snapshots" of code that is copied to the local workspace. The code is merged back into the main project once completed and leaves an audit trail. ClearCase also supports parallel development for large teams.

Albert Guralnik, a systems administrator at 3M in St. Paul, Minn., said the ability for several people to be working on the same file is very important. He said a 3M development team in California currently is working with a contract development group in India, using a less powerful and kludgy application.

After beta-testing ClearCase, Guralnik said he hopes to implement the software.

VM Server costs $3,000 per 10-user license. Version Manager 6.0 is available for $649 per user and supports Windows 95, Windows NT and Unix.

ClearCase 3.2 is expected to be generally available by the end of the month for $3,000. ClearCase supports Windows NT and Unix. □

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The Enterprise Network

LANs • WANs • Network Mana

Briefs

Cabletron backbone

Cabletron Systems, Inc. has announced plans to offer two switches with advanced routing capabilities — the first payoff from its $85 million January acquisition of start-up Yago Systems, Inc. Cabletron will ship the eight-slot SmartSwitch Router by July and a 16-slot model by year's end. They will cost $499 per 10/100M bit/sec. port and $2,500 per 1G bit/sec. port. Both will route IP and Novell, Inc. IPX traffic.

Tivoli links to Compaq

Tivoli Systems, Inc. last week shipped a module that integrates Compaq Computer Corp.'s Insight Manager tool so users can watch Compaq servers using Tivoli's TME 10 enterprise manager. Now central operators can watch Compaq servers and other systems, networks and applications through the TME 10 console. The goal is to lower the cost and complexity of managing client/server environments by giving information systems a single view of events and a central point to control software distribution and other tasks. Each Insight Manager server costs $1,000.

WORKING TOGETHER

How companies are using Notes and intranets

- Notes integrated with intranet
- Notes and intranet coexist
- Notes only
- Intranet only

Base: IS professionals at 301 companies

Source: Business Research Group, Newton, Mass.

Hotels see service from virtual net

Outsourced WAN links TV provider, hotels

By Bob Wallace

ON COMMAND CORP. has replaced its low-speed private-line network with a quicker virtual private network (VPN) so it can provide faster customer service to hotels worldwide that have bought its in-room TV delivery systems.

CASE STUDY

The virtual network has slashed the time it takes agents to access data from customer support systems from several minutes to just seconds. The virtual net links 12 far-flung regional offices with the $225 million firm's San Jose, Calif., headquarters.

Because VPN links are much cheaper than dedicated connections, On Command was able to afford much higher bandwidth — 24 times the bandwidth of its 56K bit/sec. private-line network — for about the same price: $1,200 per site per month.

The 1.544M bit/sec. T1 lines that On Command now uses give its agents access to technical data, information on trouble tickets and contracts to handle customer inquiries faster, said Jim Garcia, information technology director at On Command.

Before the virtual network, "agents had to take information from customers, hang up, wait several minutes for the data to arrive and then call customers back to answer their questions," Garcia said. "Now the data arrives in a matter of seconds."

Glenn Hazeltine, field operations regional manager for the Rocky Mountain region at On Command's Denver office, said he was pleased with the switch from leased lines to a virtual network. "It took a long time to pull up database information on the hotel, which made it too hard to keep customers on the line while we waited for the

Hotels, page 50

ROBERT HOLMGREN

CRICO MATTHEWS

Lotus Notes isn't just for E-mail anymore

By Barb Cole-Gomolski

THE INTERNET — the very thing that threatened to make Lotus Development Corp.'s Notes obsolete a few years ago — seems to be driving Notes users to use the product's groupware features in addition to its electronic mail.

A recent *Computerworld* poll of 101 information systems managers in organizations that use Notes and other interviews indicate that companies are increasingly using Notes for more than just E-mail.

For example, 86% of respondents use Notes for group discussions, and more than half of them have workflow applications based on Notes. Some 64% use Notes as a repository

Notes, page 50

Neural agents spy network traffic errors

By Patrick Dryden

SINCE HUMANS aren't too swift at coping with complexity, Computer Associates International, Inc. wants to train its software to recognize patterns.

That ability comes from neural network technology, which reproduces some functions of the human brain in mathematical models. CA will first enhance its Unicenter TNG enterprise management suite and then its Jasmine and OpenIngres databases.

SELF-TAUGHT

"This is the next big step for us," said Yogesh Gupta, senior vice president for product strategy at CA in Islandia, N.Y. "Neural nets will help Unicenter TNG itself learn how to manage, then will analyze business data to reveal patterns in retail sales, for example."

A neural network learns relationships from historical data to recognize a situation, make an evaluation and take an action. Implementations have included business forecasting, manufacturing process control, market research and financial risk analysis.

But the Holy Grail of self-managing systems and networks may be a long way off.

Neural network agents — dubbed "neugents" — promise a big payoff in the client/server management arena because "too damn many things can go wrong in a global network," said Jonathan Eunice, an analyst at Illuminata, Inc. in Nashua, N.H.

By observing causes and effects, not just individual statistics, the neugent "trains itself a little better with every event," Eunice said. "People can't recognize what's happening with fast packet traffic, but to the neugent, every error is meaningful."

Neural agents, page 50

The Enterprise Network

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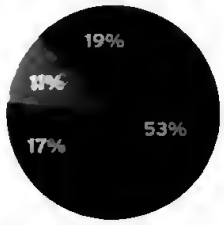

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On Command's Jim Garcia: Because of the company's new virtual private network, "data arrives in a matter of seconds"

BASF's Linda Kilcrease: "It's easier now to develop these [groupware] applications"

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Neural agents, page 50

Hotels see service

CONTINUED FROM PAGE 49

data," he said. "The change has made a huge impact on the process." The office can get by with two fewer agents than it would otherwise have needed, he said. To ensure optimal performance, Garcia chose a VPN service that runs entirely over the backbone of one Internet service provider — Concentric Networks Corp.

"The [VPN] has made a huge impact on the process." The office can get by with two fewer agents than it would otherwise have needed. – Glenn Hazeltine, On Command

Response times often increase when traffic leaves a service provider's network and travels over the Internet. [CW, Jan. 26] Concentric uses quality-of-service technology in its network, which enables it to guarantee performance in service-level agreements. Regular Internet connections lack such guarantees.

"We didn't want any of our traffic to run over the Internet," Garcia said. "We've realized remarkable performance by keeping all our traffic on Concentric's network."

Going with one Internet provider rather than a mix of local providers that send traffic over the Internet is an emerging trend that gives the user better performance, a single contact for network management and lower prices because of the consolidated traffic, said VPN expert Deb Mielke, an analyst at TeleChoice, Inc., a consultancy in Verona, N.J. "Almost everyone going with VPNs from here on out will take this approach," she said.

And the Internet provider has done an exceptional job handling problem identification and resolution on the wide-area network, Garcia said.

"We had two router failures in regional offices, and Concentric knew about them before we did," he recalled. "And having Concentric handle performance issues has saved us an incredible amount of time."

Resolving performance problems on the private-line network often involved a "six-week finger-pointing session" among equipment vendors and carriers, he said. "It was a real nightmare." □

Neural agents spy errors

CONTINUED FROM PAGE 49

For example, a neugent watching an electronic-mail server in CA's lab recognized a pattern in message buffers and queues that would cause failure, Gupta said. Left alone, the server soon failed. Other neugents try to detect emerging situations such as service slowdowns or virus activity.

Such self-learning capability should help Unicenter TNG users greatly — if CA can deliver it, said Rich Ptak, director of systems management research at D. H. Brown Associates, Inc. in Port Chester, N.Y.

"Right now, users need a lot of expertise to write management policies that explain how to respond to changes in each statistic. It's simpler to just identify patterns and trends as good or bad," Ptak said.

Creating new policies for Unicenter TNG is a challenge for staffers at The Equitable Cos. because the client/server environment grows more complex from month to month, said Andrew Kregar, managing director of equipment planning at the company. "The agents need to understand how we need to operate so we can predict problems and stay more responsive to users," he said.

The new agents also could help IS cope with shrinking expertise and staff, users said.

"We need all the help we can get writing policies," said Bill Oris, an IS vice president at J. P. Morgan & Co. in New York. "If CA can make this easier, then we won't have to do as much training."

The promised agents could enable security policies to take over manual tasks, said Ken Shaurette, information security systems staff adviser at American Family Insurance Group in Madison, Wis.

"We don't have enough staff to scan a set of servers every week looking for expired user IDs," Shaurette said. Instead, neugents could actively scan directories, databases and security policies. CA officials said they hope to demonstrate neural networks at CA-World '98 to be held April 26 in New Orleans. But users probably won't see products until next year because "this is a big lump of technology to swallow," Eunice said. □

Notes not just for E-mail

CONTINUED FROM PAGE 49

for corporate know-how, and about two-thirds have built custom groupware applications.

Users cited widespread support for Internet protocols in Notes and the companion Domino server as a key factor in the growing popularity of groupware applications.

"It's easier now to develop these [groupware] applications [due to improvements in Notes]," said Linda Kilcrease, a collaboration architect at BASF Corp. in Mt. Olive, N.J., which will roll out about 13,000 Notes seats. "And we now have the option of running [World Wide Web] browsers as clients with Domino applications," she said.

Kilcrease said when Notes 5.0 is released — with an integrated Web browser in the client — the company will make the groupware accessible to even more application developers.

"Support for Internet protocols means that we can distribute applications cheaply and easily," said Tim Page, executive director at Aon Group Ltd., an insurance company in Chicago with 30,000 Notes seats.

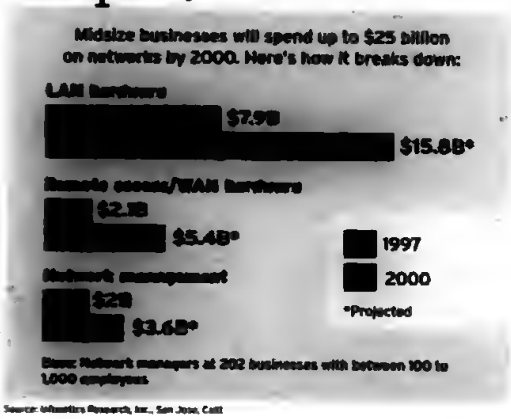
Besides using Notes internally, the insurer lets customers view documents stored on Domino servers using browsers.

Previously, a lot of companies installed Notes but failed to deploy the more sophisticated groupware functions. A 1996 survey of more than 1,600 Notes users conducted by Arthur Andersen & Co. indicated that about half of respondents used Notes for discussions and only 14% used it for workflow.

"We're not just filling out Domino servers for E-mail," said Dennis Murray, global head of cooperative technologies for clinical development and regulatory affairs at Novartis Pharmaceutical Corp. in East Hanover, N.J., which has 25,000 Notes users. Instead, the company decided to leverage its investment in Notes by building an intranet application based on Domino to manage regulatory affairs, and it will eventually develop one for drug development, Murray said.

Ironically, there may be a downside to the fact that Notes application development appears to be taking off on the Web. "The continued use of Notes for collaboration and custom Notes and Web development raises some doubt about Lotus' view of its product as a leading messaging product," said Mark Levitt, an analyst at International Data Corp in Framingham, Mass. Lotus was playing up Notes' E-mail features at its Lotusphere '98 last month. Users and analysts said the move was a direct response to the popularity of Microsoft Corp. Exchange, which is known more for messaging than for groupware. □

Snapshot



Source: Infonetics Research, Inc., San Jose, Calif.

SHORTS

NT 5.0 training

Even before Microsoft Corp. ships its long-awaited Windows NT upgrade, New Horizons Computer Learning Centers, Inc. in Santa Ana, Calif., is unveiling a training seminar for the platform. The seminars, which are slated to start this month, will focus mainly on migration issues. They are intended to help the migration and upgrade process to Windows NT 5.0 and will focus specifically on the new Active Directory. The $250 one-day sessions will start in Chicago and Houston.

Free gateway

Provo, Utah-based Novell, Inc. is shipping a free gateway for linking its GroupWise messaging and groupware system to Lotus Notes. The company is beta-testing a GroupWise gateway for Microsoft Corp. Exchange. Both gateways can be downloaded from Novell's World Wide Web site at *www.novell.com/download*.

Intranet tool

Xerox Corp. this month will ship DocuShare 1.5, an upgrade of its software for posting and managing information on corporate intranets. It can automatically convert documents to Hypertext Markup Language, so users can view and print documents from a browser rather than from the application that created them. Pricing is $695 for a single server and 25 clients.

CA covers Sun

Computer Associates International, Inc. in Islandia, N.Y., last week added support to its Unicenter TNG enterprise manager for Enterprise 10000 — also known as Starfire — servers from Sun Microsystems, Inc. Central operators can accurately recognize all aspects of those systems, launch Starfire management functions, correlate events and extend policy coverage from the Unicenter TNG console.

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ComputerWorld Customer Satisfaction Survey*

	3Com	Cisco	Bay
Performance	50%	62%	47%
Reliability	57%	76%	67%
Manageability	17%	36%	19%
Expandability	43%	48%	40%
Compatibility	50%	64%	51%
Overall Satisfaction	50%	52%	37%

*Percentage of customers responding with "very good" rating

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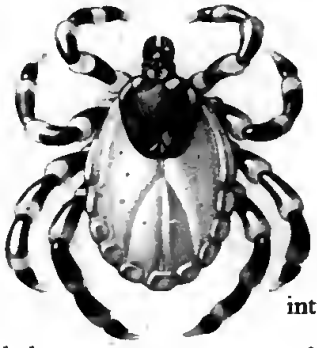
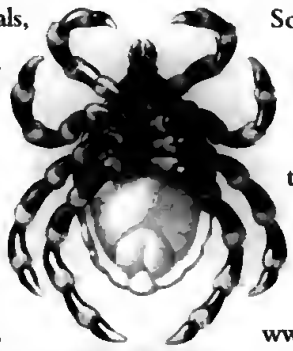


dorsal view



ventral view

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Software

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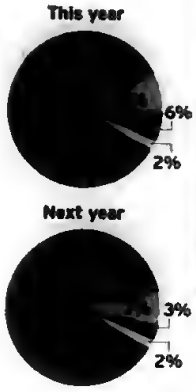
Briefs

OS FOR NEW APPS

Which server operating system do you plan to use for new applications?



Base: 1,400 North American companies
Source: SoundView Financial Group, Stamford, Conn.

Pervasive mixes it up

Pervasive Software, Inc., a maker of embedded databases in Austin, Texas, this week plans to announce it is blending its Btrieve and Scalable SQL software into a single product. Available now, the new Pervasive.SQL combines Btrieve's direct data access capabilities with Scalable SQL's support for relational technology. Pricing starts at $995 for 10 users, compared with separate prices of $795 for Btrieve and $995 for Scalable SQL. Pervasive sells mainly to small and midsize users through resellers.

Sage Group in merger

State of the Art, Inc. in Irving, Calif., and The Sage Group PLC in Newcastle upon Tyne, England, are merging pending approval. State of the Art makes accounting software for midsize companies. Sage makes PC-based accounting software for small and midsize businesses. Under the agreement, Sage will acquire State of the Art for about $263 million and make it a wholly owned subsidiary.

Teradata embraces Microsoft tools

▸ *NCR aims to lower costs of database*

By Craig Stedman

LET'S BE LIKE Microsoft.

That is a key piece of NCR Corp.'s bid to make its Teradata decision support database less intimidating to users who aren't building gargantuan data warehouses. Long saddled with a reputation as a high-end beast, Teradata is now being tied to the Microsoft Corp. way of low-cost, generic computing.

First up is a Windows NT version designed to lower costs and expand hardware support beyond NCR's own Unix and proprietary servers. Due in the second quarter, the NT release will be followed later this year by a move to graft the informational meta-data catalog from Microsoft's SQL Server database onto Teradata so the two look identical to decision-support tools and applications.

TERADATA'S LOW ROAD

NCR's plans to broaden Teradata's appeal:

Technology	Planned availability
Windows NT version for SMP servers	Second quarter
Windows NT version for parallel systems	Late this year
Support for Microsoft's meta-data catalog	This year
Support for Intel/Solaris Unix servers	Next year

NCR's goal is to make it easier for users to hook SQL Server-based data marts to Teradata and then lean on Microsoft-oriented tools to access and manage the data stored in each. Migrating data from SQL Server to Teradata would also become less complicated, said NCR officials in Dayton, Ohio.

For Ted Pardo, assistant vice

Teradata, page 56

EMC continues on Windows NT path

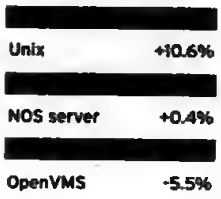
By Nancy Dillon

EMC CORP. LAST week made several announcements meant to position it more squarely in the path of users riding the Windows NT wave.

Three product enhancements from the Hopkinton, Mass.-based storage vendor will give users more choices with Windows NT configurations and systems management as well as new load-balancing and path failover software, called PowerPath. PowerPath works with NT as well as Unix servers from Sun Microsystems, Inc., Hewlett-Packard Co. and IBM.

EMC unveiled support for Fibre Channel connections on its Symmetrix arrays for Windows NT servers; NT support for its system monitoring and configuration software, called Symmetrix Manager for Open Systems; and Symmetrix support for Microsoft Corp.'s Cluster Services for NT 4.0.

Estimated worldwide revenue growth rates for disk storage subsystems, 1997 through 2001



Source: International Data Corp., Framingham, Mass.

Robert Rosbough, MIS director at health care provider ACT Corp. in Daytona Beach, Fla., said EMC's announcements don't affect him now but will be important in the future. Rosbough plans to deploy several NT applications in the next six months. He said by 2000, ACT's accounting, purchasing and medical records will all reside on NT servers. The company also is growing at an annual rate of 10%.

"We have a Unix storage array right now, but once we make the move to NT, our next large array will be from a vendor who has been out there with NT support for a while. We want to be sure the system works right," Rosbough said.

Anders Lofgren, an analyst at Giga Information Group in

EMC, page 57

Software gives feedback to Chevron IS

By Gordon Mah Ung

WANT TO KNOW what users think of the latest upgrade? Just ask them.

That's what San Francisco-based Chevron Corp. plans to do this year as it begins a 30,000-seat rollout of Office 95 and Office 97 on Pentium PCs among its 20 subsidiaries.

To do the job, Chevron will use DecisionSource, a new client/server surveying application from Decisive Technology Corp. in Mountain View, Calif.

"The goal is 30,000 happy faces," said Lew Winters, who works at Chevron's public affairs office and opinion research group in San Francisco. Winters' group is charged with carrying out the survey.

"The advantage, in my opinion, is the speed in which you get the data back," he said.

DecisionSource allows polls, via electronic mail, the Internet or an intranet, that are automatically tallied and displayed graphically. Internet and intranet polls are forms-based and filled out through a World Wide Web browser. Decisive Technology offers the new package

Chevron, page 56

REVIEW

Java-based app shows promise, but needs work

By David Strom

IF YOU WANT A peek at what kind of Java-based applications are possible, then download ESuite's WorkPlace preview version from Lotus Development Corp.'s World Wide Web site. After you copy about 6,000 files to your hard disk and adjust a few important parameters, you will see a Java-based desktop working area that leaves much to be desired.

ESuite is an all-in-one inte-

Review, page 56

REVIEW

▸ *ESuite WorkPlace preview version*

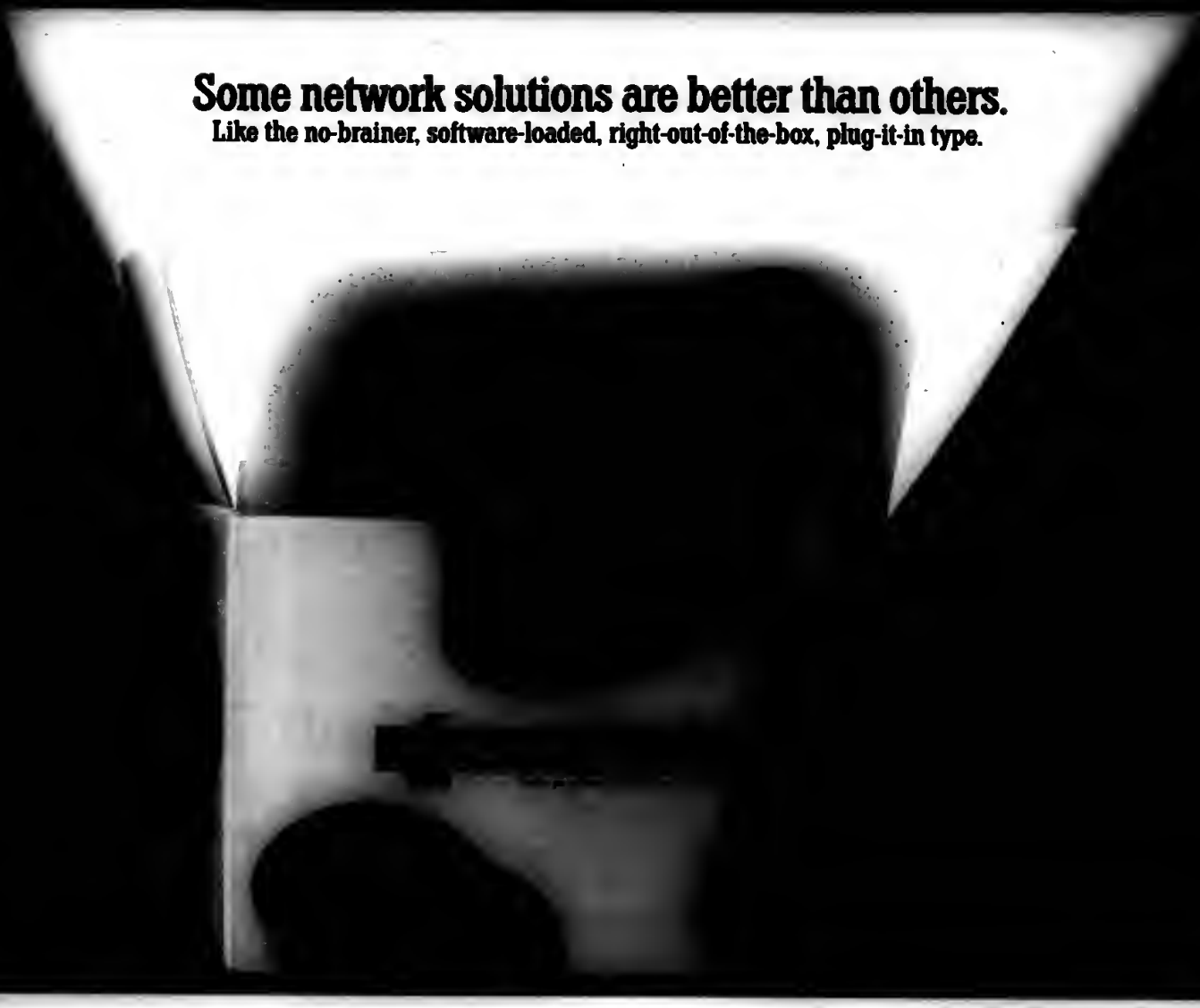
LOTUS DEVELOPMENT CORP.
Cambridge, Mass.
(617) 577-8500
www.esuite.lotus.com

Pros: An "all-in-one" integrated office application; Java-based interface has many potential uses.

Cons: It's still a work in progress; primitive address book, browser and word processor.

Some network solutions are better than others.

Like the no-brainer, software-loaded, right-out-of-the-box, plug-it-in type.



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Teradata embraces Microsoft tools

CONTINUED FROM PAGE 53

president of architecture and technical support at Southern New England Telecommunications Corp. (SNET) in New Haven, Conn., the upcoming changes point toward a more open era for Teradata.

"At this stage of the game, Teradata is closed and expensive," Pardo said. "But NCR is really trying to figure out how to deal with that. When they told me what they were doing, I said, 'Go, go, go. And come see me when you get there.'"

SNET, which last month agreed to a takeover bid by SBC Communications, Inc. in San Antonio, uses Teradata to store more than 1T byte of marketing and billing information for analysis by 300 end users.

But Pardo said SNET now wants to put data subsets into SQL Server or other lower-cost databases that are supported by a wider range of analysis tools. That should be cheaper than expanding the NCR WorldMark 5100 server on which Teradata runs, he said.

NCR's vows to give Teradata users freedom of choice on hardware and to start making the database more user-friendly are also welcome signs of change to Joe Bruscato, who is in charge of data warehouse design at Anthem Insurance Cos in Indianapolis.

"Hardware is not why we chose NCR," Bruscato said. "We chose them for Teradata, and the hardware just sort of comes along as a package."

Teradata users also "have to know more about the product to make it work" than is the case with databases such as SQL Server, he said.

NCR doesn't plan to mothball its own form of meta data, which serves as a card catalog to help users navigate through data warehouses.

But Ron Fryer, director of data warehouse marketing at NCR, said users of both the Unix and Windows NT versions of Teradata will be able to substitute Microsoft's catalog for the NCR-built one.

UNTOUCHABLE

Teradata's high scalability support and parallel processing capabilities let it do "stuff other databases just dream about," said Ed Schaider, an analyst at The Standish Group International, Inc., a research firm in Dennis, Mass. But even though its starting price has been chopped to $50,000, "most people still associate Teradata with a $2 million purchase," he said. □

Three-phase upgrade

NCR last week announced as expected a Teradata upgrade that is being released in three stages (CW, Jan. 26). Teradata users will have to wait until September to get built-in support for online analytical processing and data mining. The first phase of Teradata Release 3 is available now with faster query performance, and a second one due in April will add expanded data joining capabilities. — Craig Stedman

▸ **REVIEW:** *Lotus' ESuite preview version*

Java-based ESuite shows promise, but needs work

CONTINUED FROM PAGE 53

grated office application, but I say that with lots of caveats.

It has everything from word processing to address books, from electronic mail to terminal emulation for both IBM 3270 and 5250. Indeed, it reminded me of Lotus' early (and much misguided) foray into that arena called Symphony.

The opportunity with ESuite is to demonstrate how you can do some clever things with Java and run your daily computing life. The challenge is that a Java-based user interface really isn't going to get anyone (other than maybe Scott McNealy) to stop using their existing applications just on religious grounds.

THREE STRIKES

For ESuite to catch on, it has to offer compelling features when compared with the present range of desktop office suites from Microsoft Corp., Corel Corp. and Lotus itself. Because it is written in Java, ESuite should exploit network-based applications in a new and exciting way.

For example, it should run on a wide variety of platforms and operating systems. It should use the Web in ways traditional suites can't, such as allowing users to incorporate its Java applets into their custom-built applications. But I found ESuite struck out there — so far, it doesn't do any of those things.

I tested ESuite on a Windows 95 machine with oodles of RAM. Lotus recommends 32M bytes, but I wouldn't even try it with anything less than 64M bytes. You will also need to drop your monitor configuration to support 256 colors. It will run on Windows NT, but two versions of Windows is about as cross-platform as it gets.

I tried to create various documents in its native format and import existing files in various Microsoft and Corel Office products. I found the word processor weak: The total set of functions isn't much more than cut and paste, formatting text and printing and saving files. It is on par with an early CP/M version of WordStar I used in the 1980s.

The address book and Web browser are also quite primitive. If you have an existing address book, the only way to move it over to ESuite's address book is to save each contact as a VCard — one by one.

So with all of these missing features, what is in those 6,000 files, you ask? ESuite's Java classes and libraries. Although they are small, they multiply like rabbits. The thought of maintaining such a menagerie seems daunting.

This version is far from being finished. I would hesitate to call it a preview — it is more like an initial set of things to play with. Major pieces are missing. First, you can't import or export many file formats.

For example, the only spreadsheets you will be able to create are .wk1s, a format that was used about a decade ago in most offices. That limits the ability to do much with the product. It wouldn't make sense to stop using your current office suite and start using ESuite without having a way to carry your legacy documents forward.

Second, you can't yet run the software over a network. It doesn't recognize existing networked drive assignments and your file system beyond its own directory. This is a real lost opportunity to show how network-savvy Java can be.

Third, the way ESuite is started will get some grins, given you load the Java virtual machine and environment from a DOS command line. That is a small nit to pick, but a very lame one.

Of course, these problems will be fixed, and missing items will eventually be added — maybe in time to call it Version 1.0 later this spring. But for now, ESuite left a sour taste on my hard disk. I'll hold off a while before taking another nibble. □

Strom is a freelance reviewer in Port Washington, N.Y.

Chevron IS to survey users

CONTINUED FROM PAGE 53

along with professional services and turnkey packages.

With near real-time feedback on employee satisfaction during the deployment, Chevron's technology group will be able to make improvements to the rollout as it progresses for nearly a year.

Judy Hodges, a research manager at International Data Corp. in Framingham, Mass., said Chevron's effort is an example of how surveying software can be put to good use in a company.

"They can get rapid feedback across all the operations. And they can make well-founded decisions now based on their own analysis," Hodges said. "I think higher employee retention and higher customer retention are some of the beneficial results [of the better communication surveying provides]."

DecisionSource offers functionality similar to that found in the stand-alone product, Decisive Survey 2.0, but adds a feature that lets supervisors approve surveys before they are released.

Dawn Gallagher, manager of interactive marketing at Nabisco Food Service Co. in Parsippany, N.J., said Nabisco used Decisive Survey 2.0 for about a year and the product paid for itself the first time it was used.

EASE OF USE

"It's all done in one nice step, and it has made life very easy," Gallagher said. Before buying the product, Nabisco made extensive use of paper and phone surveys for marketing information. "What it's done is enabled us to do our own marketing surveys without market researchers and without IS. It's given us control over our own projects."

The cost of the package is $60,000 with five clients. It runs on Windows 95 and Windows NT. The database server requires Windows NT 4.0 and Microsoft's SQL Server 6.5. □

SHORTS

Help site for Office

Microsoft Corp. has created a World Wide Web site to offer support and updates for its Office 97 suite at *www.microsoft.com/office*. The site showcases maintenance updates, new animated office assistants, a speech recognition plug-in for Office as well as answers to frequently asked questions.

Borland reports rebound

Borland International, Inc. in Scotts Valley, Calif., has announced a 17% increase in revenue in the third-quarter of fiscal 1998 compared with the same quarter the year before. Borland reported third-quarter earnings of $43 million. That figure is compared to $36.8 million from the same quarter a year ago.

EMC shores up Windows NT offerings

CONTINUED FROM PAGE 53

Cambridge, Mass., said "the sweet spot" for storage right now is with Windows NT at about 10G bytes.

"EMC typically plays in the 100G-byte range," Lofgren said. "The EMC/NT match is not a perfect one today. But NT storage will probably hit the bundreds of gigabytes range faster than we expect, and when it does, EMC will be well-positioned."

TRAFFIC COP

EMC's PowerPath software works by distributing data traffic across all available data paths — up to 32 on a fully configured Symmetrix array. When one path fails, the software redirects the workload to an alternative path to prevent application failure. The software works only with SCSI connections.

Interconnect problems, such as SCSI cable or bus card failures, between hosts and disk arrays are the cause of most system downtime, said Mark D. Purdy, director of advanced systems at Bloomberg LP in New York. Purdy uses PowerPath with eight EMC Symmetrix arrays.

"We provide real-time financial information to 85,000 terminals worldwide, so we rely on nonstop availability," he said. "PowerPath provides redundancy and spreads out I/O loads so that if one channel goes down, the system keeps going."

PowerPath software costs between $9,500 and $43,000. Similar products that guard against interconnect failures with Windows NT and Unix systems include LifeKeeper from Dayton, Ohio-based NCR Corp. and FirstWatch from Mountain View, Calif.-based Veritas Software Corp.

EMC's Symmetrix Fibre Channel director with NT support costs $35,000. Symmetrix Manager for Open Systems with NT support costs $15,000. □

NEW PRODUCTS

EMASS, INC. has announced Amass for Windows NT, software that lets users access storage on tape libraries and optical jukeboxes as if it were on a single, direct-access disk drive.

According to the Englewood, Colo., company, the server software maintains the library file index on the server disk, which allows file search performance at hard disk access speeds. The library is presented as a single icon that can be shared across the Windows NT network. Users can drag and drop files to and from the library. The software works with standard client software and communications protocols.

Pricing starts at $3,000.

Emass
(303) 792-9700
www.emass.com

MACROMEDIA, INC. has announced FreeHand 8, design software for Windows 95, Windows NT and Macintosh operating systems.

According to the San Francisco company, the new version facilitates transfers from print to the World Wide Web because it allows designers to export URL-linked illustrations in native Flash vector format. Other features include one-button shadow, mirror and emboss effects and the ability to lay translucent text over bit maps.

It costs $499.

Macromedia
(415) 252-2000
www.macromedia.com

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Servers & PCs

Large Systems • Workstations • Portable Computing

Briefs

Digital/HDS team up

Digital Equipment Corp. and San Jose, Calif.-based Hitachi Data Systems Corp. last week said they will co-develop data storage systems. Digital plans to integrate Hitachi's HDS 6700 and 7700 Scalable Arrays with Digital's StorageWorks family. Digital has been looking to partner with a mainframe vendor to boost its presence in the storage market, said Harry Copperman, a senior vice president at the company.

Micron clients get NT

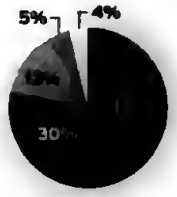
Micron Electronics, Inc. in Nampa, Idaho, will pre-install Microsoft Corp.'s Windows NT Workstation 4.0 on its ClientPro and Power-Digm machines. Micron also will outfit some ClientPro systems with 3Com Corp.'s Remote Wake Up Ethernet adapters, which allow computers to be turned on remotely for servicing or upgrades.

IBM business desktop

IBM will offer a new business desktop, the 300GL, with a Pentium II processor. It will cost $1,249, will feature IBM's Self-Monitoring Analysis and Reporting Technology and will comply with Intel Corp.'s Distributed Management Interface technology.

NO GREAT RUSH

The state of thin-client deployments



- No activity
- Early evaluation
- Evaluating certain products
- Have a pilot installed
- Have units in production

Base: 1,400 managers at North American companies

Source: SoundView Financial Group, Stamford, Conn.

Compaq's cup runneth over

COMPAQ, DIGITAL AND TANDEM OFFER USERS THE FOLLOWING:

Digital	Compaq	Tandem
▸ 64-bit Unix for Alpha	▸ Intel-based server technology	▸ High-availability Himalaya servers
▸ Very Large Memory technologies for Unix and OpenVMS	▸ Strong desktop capabilities	▸ Nonstop server software
▸ Scalability clustering for Unix and OpenVMS	▸ Channel partnerships	▸ Enterprise-level service expertise
▸ Windows NT and enterprise service	▸ Strong midlevel customer base	▸ Direct sales force experience

▸ Success hinges on meshing Digital, Tandem technologies

By Jaikumar Vijayan

DIGITAL'S SERVICE organization may have been what Compaq *really* wanted when it moved to acquire the company Jan. 26. But gaining control of Digital's technology isn't so bad either, users and analysts said.

Compaq Computer Corp.'s purchase will give the Houston-based PC maker enterprise-class products, including high-end Windows NT software, clustering technologies, Unix/Windows NT integration technologies, a 64-bit Unix operating system, 64-bit applications and, by year's end, a 32-processor Alpha server code-named Wildfire.

Observers expect that Compaq will bolt these technologies from Digital Equipment Corp. to its own product lineup.

That will give Compaq a portfolio that includes sub-$1,000 PCs, symmetrical multiprocessing 64-bit Alpha servers and nonstop systems from its acquisition of Tandem Computers, Inc. last summer [CW, Feb. 2].

But Compaq's success with Digital's products will depend on how well it is able to integrate them — and Tandem's products — with its own technologies, analysts said.

Previous mergers such as this, for instance between AT&T

Compaq, page 60

Notebook vendors to users: Lighten up!

By Kim Girard

NOTEBOOK USERS willing to ditch large, panoramic screens for smaller, lighter machines have never had it so good.

Fujitsu PC Corp. in Milpitas, Calif., Hitachi PC Corp. in San Jose, Calif., and IBM all have ultraportables in the sub 5-pound category. Market observers said more are expected to join the parade, including Hewlett-Packard Co.

At 3.9 pounds, Toshiba's Portege 320CT is for road warriors who seek a lighter load

An ultraportable pioneer, Toshiba America Information Systems, Inc., is scheduled today to roll out several notebooks, including a refreshed 4-pound ultraportable with a boosted hard drive and processor that matches its heftier relatives.

The Portege 320CT, which is expected to ship in March, costs $3,699. Weighing in at 3.9 pounds, the notebook is equipped with a 266-MHz Pentium with MMX technology, a 4G-byte hard drive, 32M bytes of RAM, fast power-on and a 56K bit/sec. modem. The notebook also features Distributed Management Interface 2.0 support for inventory tracking and LANDesk 3.1 client manager, which enables better remote access capability.

Joe Quon, notebook product manager at Pacific Gas & Electric Co. in San Francisco, has approved purchase of the Toshiba 300CT for the company's frequent travelers. He said he plans to evaluate the new 320CT, as more users are pushing for lighter machines.

At Spalding Sports Worldwide in Chicopee, Mass., several users in corporate finance and

Vendors, page 60

REVIEW▸ *JavaStation Network Computer*

Sun has packed big potential in tiny package

By Ken MacLeish

ITS PACKAGE is smaller than the boxes containing some software products. But the long-awaited JavaStation Network Computer from Sun Microsystems, Inc. holds a promise of change that dwarfs its modest physical dimensions, according to tests at Client/Server Labs, Inc.

JavaStation is in use at several test sites. Commercial availability is scheduled for later this quarter. For a systems administrator, deploying network computers could be appealing.

> The concept of the URL as a locator tool is just a Web address is realized in JavaStation

No local drives means there is no locally installed software and no access path for viruses.

It might be impossible to simplify a desktop computing setup more than this: Take it out of the box, plug in a total of

JavaStation, page 60

Sun slips into storage space

▸ Vendor unwraps mainframe-class StorEdge

By Nancy Dillon

SUN MICROSYSTEMS, INC. has announced its first big-league storage system for the data center.

The mainframe-class system, StorEdge A7000, may relieve some of the headaches associated with data warehousing, decision support and centralized backup, users and analysts said.

Sun gained the product in its 1997 acquisition of Encore Computer Corp. It can house up to 2.9T bytes of data and simultaneously connect to 32 hosts. It is compatible with IBM, Amdahl Corp. and Hitachi Data Systems Corp. mainframes, as well as Solaris, HP-UX, AIX and Windows NT.

The A7000 is available immediately. Pricing starts at $286,000. It will compete with EMC Corp.'s Symmetrix 3700. Both support SCSI and ESCON host connections, but only EMC's system supports Fibre Channel.

One big difference is the StorEdge DataShare software that ships with the A7000. DataShare lets mainframe and Unix or NT servers read master copies of A7000 storage vol-

Sun storage, page 62

Sun packs lot of potential in JavaStation package

CONTINUED FROM PAGE 59

five cables, and turn it on. If the server is available, the user's monitor will bring up a log-on screen, followed by almost anything.

One of our testers was impressed with Sun's use of URL references to applications, icons and other information.

The version we were sent was the interestingly shaped "desktop tower" variety — a disklike oval, about 10 inches high — which has an external power supply and no moving parts other than the power switch.

A more generic PC-shaped version is known affectionately as the "brick." It incorporates the power supply and a small fan. The two versions are said to be nearly identical in function.

JavaStation includes most of the familiar desktop parts and connections, with the expected absence of any sort of disk drive.

The compact panel has an array of I/O connectors, including PS-2 keyboard and mouse ports, a monitor jack, a 10/100M bit/sec. Ethernet connection and a single serial port. There are audio in/out jacks as well, although the rather odd symbols that Sun uses for those functions required clarification.

The hardware is based on a 100-MHz Sun MicroSPARC-IIep CPU and includes the maximum RAM complement of 64M bytes. The main non-PC aspect is the 8M bytes of flash memory, which is where the JavaStation operating system resides. That allows centralized version control of the operating system.

The screen could show anything the systems administrator wants to show, from a certain application to a company stock quote to a page on the company's intranet. And what is shown can be set for an individual user, a workgroup or the entire network.

DEFAULT ICONS

But the most likely screen to greet users is HotJava Views, one of the two ready-to-use desktop environments available as a part of the JavaStation package.

HotJava Views addresses the common information needs of a corporate user, with five default icons on the left side of the screen for an applet selector, electronic-mail client, database/directory, calendar and World Wide Web browser.

Other icons can be added in "sliding panels," similar to the Windows 95 taskbar, at the top or bottom of the screen. The other desktop option is HotJava Browser, which Sun said can be customized to create any network-based application.

One of our testers was particularly impressed with Sun's use of URL references to applications, icons and other information.

Among other things, that allows a site and a user to always have a current view of time-sensitive information without having to place a new file on each station or server. The concept of the URL as a uniform resource locator, rather than just a Web page address, is realized here.

From initial installation of the hardware, it took only about a half-hour to set up Sun's Solaris 2.6 on the accompanying Sun Ultra 5 server.

The Netra j 2.0 JavaStation software is then set up from one easy-to-use graphical user interface (GUI). With the exception of one change to the Dynamic Host Configuration Protocol configuration, that GUI easily handled all of the server and client setup.

Even with its spartan layout, JavaStation is one of those products that offers so many potential benefits that you keep looking for the catch.

So far, we haven't found that catch, and JavaStation's potential still looks highly promising. □

PRODUCT REVIEW

▶ *JavaStation*

SUN MICROSYSTEMS
Mountain View, Calif.
www.sun.com

Price: $749

Pros: Offers potential cost savings on operations and management side.

Cons: Pricing still seems high. With only one serial port, it doesn't have enough flexibility, particularly for remote users who need multiple peripherals.

MacLeish is a technical specialist at Client/Server Labs (www.cslinc.com) in Atlanta, a primary test partner of Computerworld.

Compaq's cup runneth over – with DEC technologies

CONTINUED FROM PAGE 59

Corp. and NCR Corp. in the 1970s merger between Sperry Corp. and Burroughs Corp. to form Unisys Corp., failed at least partly because the companies couldn't integrate different technologies.

On the face of it at least, "the combination of Digital, Tandem and Compaq is formidable in any setting," said Joseph Pollizzi, president of the Digital Equipment Computer Users Society.

Taken together, the vendors' merged product lines could provide just about any technology a customer could want, said Pollizzi, who heads up the science and engineering systems division at the Space Telescope Science Institute in Baltimore.

"I think Digital's technologies [such as its Alpha servers, 64-bit Unix and OpenVMS] will give Compaq more leverage in the enterprise," said Warren Smith, director of information technology at the Victor Reinz Division of Dana Corp., an automotive manufacturer in Lisle, Ill.

It is in the crucial Windows NT Server space, in particular, that Digital brings strength to the merger, analysts said.

With 1,600 NT professionals on its rolls and a range of NT-related integration services, Digital is one of the largest NT service providers in the industry.

Digital recently expanded its relationship with Microsoft Corp. under which both vendors are developing a range of scalability and availability technologies — such as fail-over and clustering — around products such as Microsoft Exchange and SQL Server.

Microsoft and Digital also are working together on optimizing the performance of Windows NT products for Very Large Memory on 64-bit systems such as Alpha.

In Digital, Compaq also has a Unix market player.

Digital Unix has never enjoyed the kind of market share that Hewlett-Packard Co.'s HP-UX or Sun Microsystems, Inc.'s Solaris have enjoyed.

But a recent alliance between Digital and Sequent Computer Systems, Inc. to develop a common 64-bit Unix for the upcoming Merced chip and Compaq's market presence could position Digital Unix among the leaders of the Unix pack.

Sequent, in Beaverton, Ore., has a small market share but is considered a scalability leader for Unix servers running on Intel Corp. processors.

All of that means Compaq is suddenly in a great position to offer whichever technology users want over the next few years, said Gary Davis, president of Evansville, Ind.-based Animation House, Inc., a long-time user of Digital's Intel- and Alpha-based Unix and NT workstations.

"There are advantages to both Unix and NT. Compaq is in a good position to take advantage of both," Davis said. □

Vendors to laptop users: Lighten up!

CONTINUED FROM PAGE 59

information systems who travel often find the Portege easier to lug around than earlier models, said Jeff Davis, the company's information services manager.

"Multimedia isn't as important [to these users]," Davis said. "They want to travel as light as possible." At the same time, Davis said the majority of his company's 400 notebook users will stay with their larger Toshiba Satellite Pro machines.

A growing number of notebook makers are rolling out notebooks under 5 pounds that are comparable in power and speed to larger models at cheaper prices, said Phillip Redman, an analyst at The Yankee Group, a consultancy in Boston.

IBM's ThinkPad 560, for example, was introduced with a 133-MHz processor and didn't get a 166-MHz Pentium until more than a year later. It is now starting to advance with the rest of notebook line without increasing in cost, Redman said.

But he said it is unlikely that these lighter notebooks will grab more than 15% of the notebook market.

Toshiba will also add this week the Satellite Pro 470CDT. It comes with a 200-MHz Pentium with MMX technology. Priced at $2,949, the notebook offers 32M bytes of RAM, a 2G-byte hard drive, a 12.1-in. screen and a bay that supports a 10-speed CD-ROM drive, floppy or a second hard drive or battery. □

CHAOS HAS LEFT THE BUILDING

FileNFT

Sun storage

CONTINUED FROM PAGE 59

umes regardless of which platform created the data.

Analysts said DataShare's strength lies in its simplified method for loading the most current data into analytical or backup applications. EMC's competing product, Data Reach, copies and moves data among mainframes and servers.

Sam Baty, chief information officer at Houston-based waste collector Browning-Ferris Industries, Inc., said he would like to implement DataShare software. He now uses Sun's A5000 and A3000 storage systems. "We're storing duplicate data in lots of different places, backing it up in lots of different places and basically wasting a lot of time, space and money on this process," Baty said.

But analysts cautioned that, although DataShare is more efficient than competing products, the software is restricted to the A7000.

David Vellante, an analyst at International Data Corp. in Framingham, Mass., said DataShare on the A7000 is a start, but users who like their storage systems optimized for their applications may be disappointed. "The A7000, like EMC's Symmetrix, is cache-based. If users want a storage system optimized for data warehousing and decision support, they're not going to want the A7000's cache," he said.

Those users will have to wait for Sun's A5000 disk array to gain multiplatform support and the ability to run DataShare software. The A5000 was announced last quarter and is positioned as Sun's optimal data warehousing system because it has no cache. Sun's A7000, A5000 and A3000 StoreEdge systems are being positioned as components of a new line of Sun storage products, the StorEdge family. They will link via SPARC-based storage processor boards.

Sun's StorEdge A7000, like EMC's Symmetrix, is cache-based

Sun's next release in the StorEdge family will be the A1000. It will scale from 20G bytes to 150G bytes and support Solaris; NT and Unix support is promised by year's end. Pricing and availability will be announced later this quarter. □

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Contrast Ratio	150:1	120:1	100:1	150:1
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OnView Controls	Yes	Yes	Yes	Yes
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Data Warehousing

Special Section: Data Mining • Decision Su[illegible] • Strategies

Briefs

WHERE THE MONEY IS

Average 1997 data warehouse budgets, by industry

Banking	$450,000
Insurance	$350,000
Health care	$330,000
Wholesale/retail	$260,000
Business/legal services	$190,000
Transportation	$140,000
Utilities	$80,000

Base: 331 U.S. IS managers

Source: International Data Corp., Framingham, Mass.

Desktop data mining

Cognos, Inc. in Ottawa last week released an upgrade of its Scenario desktop data mining tool that is integrated with the company's flagship query and online analytical processing (OLAP) software. Scenario 2.0, which has ties to the impromptu query and PowerPlay OLAP products, adds new analysis capabilities, including a feature that provides literal explanations of data mining results. Prices start at $695 per user.

Vendors merge

Prism Solutions, Inc., a maker of data warehouse development tools in Sunnyvale, Calif., said it will buy a small company that develops customer relationship management software for the financial services industry. Customer Focus International, Inc., based in Orange, Calif., will become Prism's vertical industry unit.

And Seattle-based Vista Corp. said it plans to buy the assets of Infoblades, Inc., a Bellevue, Wash., company that makes software for modeling databases and data warehouses. According to Vista officials, Infoblades' technology will be folded into Vista's future database design products.

Staffing changes follow warehouses

When action grows unprofitable, gather information; when information grows unprofitable, sleep.
— Ursula K. Le Guin, The Left Hand of Darkness

By Leslie Goff

MICKEY LUTZ had expected that at some point his data warehousing team, formed in 1996, would fade into the background. Instead, it has its own golf shirts emblazoned with the team name, SPIN (Strategic PHH Information Network); celebrates together when a new release of the warehouse rolls out; and continues, after 18 months, to have weekly joint application design meetings with the business analysts who use the warehouse.

"I had a naive vision that we would go into maintenance mode," said Lutz, director of strategic planning and information management at PHH Vehicle Management Services in Hunt Valley, Md., a vehicle fleet management services firm. "Now I'm seeing that there will always be a core team to keep tuning and populating the warehouse."

MICHAEL PRICE

PHH's Mickey Lutz says his warehousing team is in the driver's seat when it comes to data integration

At New Orleans-based Entergy Corp., two core teams have emerged as the utility's six subject-oriented data warehouses — for finance, revenue, purchase order, human resources, customer profile and materials management information — have rolled out. A back-end team handles technical aspects

Teams, page 68

Improved analytics drive Office Depot sales

MICHAEL PRICE

Office Depot's Paul Gaffney: Well-architected mainframe systems helped establish successful decision support

By Thomas Hoffman

WHEN OFFICE DEPOT, Inc.'s merger plans with Staples, Inc. fizzled last year, Wall Street analysts such as Donald T. Spindel said it would take the company "several quarters to regain lost momentum."

After all, the office supply market leader had lost many of its top managers during the ill-fated merger discussions. It had also lost dozens of clerical staffers who used to help generate reports on product sales at its 600 stores nationwide.

But a funny thing happened on the way to the shredder. Thanks to its increased use of online analytical processing (OLAP) software by its 200 merchandisers and finance executives, Office Depot managed to generate "respectable" 4% same-store sales growth in the second half of last year. By outfitting its merchandisers with their own analytical tools, the Delray, Fla.-based company was able to "operate more efficiently without the people they lost," said Spindel, a retail analyst at A. G. Edwards & Sons in St. Louis.

Office Depot "is one of the few companies that have used OLAP tools for operational analysis," said Frank McGuff, principal at Telos Solutions, Inc., a data warehousing consultancy in Northbrook, Ill.

Office Depot began using the Essbase and Wired for OLAP software from Sunnyvale, Calif.-based Arbor Software Corp. in early 1996. It has allowed hundreds of merchandisers, salespeople and executives to launch their own queries and "refocus the business," said Bob Nickerson, director of merchandise planning and information at Office Depot.

For example, in fall 1996, Nickerson and Office Depot's other 100 merchandisers used Essbase to review the retailer's PC business by generating detailed analyses of gross margin return on investments by store and by product type.

"We found that we were carrying too much fringe stock in the wrong stores," Nickerson said. So the retailer narrowed its assortment of PCs from 22 to 12 products. That helped the company eliminate unnecessary inventory and avoid costly markdowns on equipment that was gathering dust.

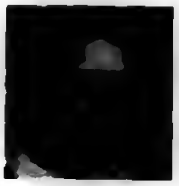
OLAP tools, page 68

COMMENTARY

From build to buy

SHAKU ATRE

AS DATA WAREHOUSING goes mainstream, the role of packaged applications and turnkey offerings will become more pervasive. That has to happen, just as it happened — and still happens — in the world of online transaction processing (OLTP). Given the choice, most companies would rather buy than build.



In the early days of transactional processing, custom application development was the only option. You had to build an application because you couldn't buy one. Companies didn't necessarily want to buy them, either. Common wisdom held that each company had needs so unique that no software package could meet them. The same belief surrounds packaged data warehousing applications.

There is some truth to that notion. Each company's warehouse will have a different mix of data sources from which to pull together and transform data. Different companies have distinct business processes, and they can vary greatly, even

Atre, page 68

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Data integration teams

CONTINUED FROM PAGE 65

such as gathering, converting and cleaning up the data and performance tuning.

A front-end team is responsible for end-user aspects such as creating tables and views of the data and interfacing with business analysts.

"Our success stems from having a group of people who are passionate about what they're doing," said Boris Bosch, who headed up the back-end team as Entergy's first data warehouse administrator. "It's almost a religion here. For Halloween, they came in dressed as Men in Black. They're very tight."

WAREHOUSE STAFFING

The teams at PHH and Entergy grew out of the database design and development group, but each began to take on a life of its own as the unique requirements of implementing a data warehouse came into focus.

With data warehousing, the familiar battle cry for information systems to have greater integration with the business achieves a new level of urgency. That gives rise to new positions and job descriptions for old positions that foster greater integration between the IS team and the business analysts.

Database administrators, for example, have had to adopt a new perspective in the online analytical processing world than they had in the online transaction processor environment. They needed to learn to decode rather than code the data and to look for data in external sources such as spreadsheets, word processing files and even file cabinets.

With constant demand for new tables and data views, flexibility and speed have replaced traditional database skills requirements.

Data quality assurance has become a key role as IS strives to gain the confidence of the analysts using the information in the warehouse to drive business decisions.

The evolution of the PHH and Entergy teams reflect survey data collected in 1996 by the Data Warehousing Institute, a research consortium based in Gaithersburg, Md.

The group found new job titles such as "back-end manager," "front-end manager," "data transformation/cleaning analyst," and "data steward."

Teams vary in size from eight to 25 people, and frequently one individual shoulders all the responsibilities assigned to two or more of these positions, according to the report.

An updated version of the report, Roles and Responsibilities of Data Warehousing Professionals, is due at month's end.

"Is IT shaping the business side or is the business side shaping IT?" asked Richard Rist, vice president of the Data Warehousing Institute.

"Data warehousing that is successful bridges the two communities and requires the IT community to be much more involved in understanding the business objectives," he added.

COLLABORATION

Rist said that in every failed data warehousing initiative he has encountered, the missing ingredients were a business sponsor and close collaboration between the two parties.

Business and technology demands fortuitously collided at Entergy, said Bosch, who recently became manager of database administration, services and support.

Just as IS was preparing to convert mainframe financial applications to a Unix platform, business analysts were clamoring for a system that would integrate budgeting and general ledger applications.

"We were blessed," Bosch said, "because several business and technology drivers came together at the same time, and that made it a success from the beginning."

PHH's business-to-business data warehouse is enabling the company to offer a new level of client services as the logical starting point for new extranet applications, Lutz said. That's a development neither the business analysts nor the SPIN team had anticipated.

"In the past, [database administrators] tried to predict how users would use data. Now users don't even know how they will use it," Lutz said. "I don't believe this will ever be done. Today's business is too dynamic, and there are always new information needs." □

Goff is a freelance writer in New York.

Sold on OLAP tools

CONTINUED FROM PAGE 65

In turn, Office Depot's return on assets for its computer business "has improved substantially," Nickerson said. He declined to quantify those specific gains but said the company's use of Essbase and Wired for OLAP tools "has translated into millions of dollars in profitability." Last year, Office Depot was ranked third among computer retailers with $2.59 billion in sales — trailing behind only CompUSA and Best Buy, according to *Computer Retail Week*, a trade publication in Manhasset, N.Y.

Even Dilbert, which Office Depot has licensed for use in its current advertising campaign, would have a tough time being cynical about the returns that Office Depot has made on its sub-$5 million investment for Essbase software and Compaq Computer Corp. 7000 servers. Smoothing the way was a previously completed five-year effort to replace a smattering of IBM AS/400s with a 500-MIPS IBM CMOS mainframe sysplex running DB2.

A shift to mainframe processing may not sound sexy, but Office Depot wound up with well-architected systems that were good at keeping detailed data. That helped Office Depot set up a clean decision-support environment comprising 4T bytes of mostly DB2 data and 200G to 300G bytes of Essbase information that is stored in data marts or "cubes," said Paul Gaffney, senior vice president of systems development at Office Depot.

"It would have been impossible to deliver that data if we didn't have a good data architecture," Gaffney said.

Still, success hasn't come easy. A single cube can contain up to 30,000 products and up to 53 weeks of financial data for each of its 600 stores, Nickerson said. And when the cubes got too big, Office Depot's disk servers would bog down.

STORAGE DEVICES

To unclog those bottlenecks, Office Depot bought multichannel RAID direct-access storage devices from IBM. That helped the data marts generate subsecond responses "on any drill-down request" on precalculated cubes, Gaffney said.

When the data cubes got too big, the disk servers would bog down.

Office Depot is weighing whether to provide suppliers with World Wide Web access to its data marts using Wired for OLAP connections. Office Depot already shares sales activity with two key suppliers through electronic data interchange transaction sets, so "we have to decide whether we really need to send them that information via Essbase," Nickerson said.

Spoken just like Dilbert. □

Atre: buying

CONTINUED FROM PAGE 65

among departments. Query needs also vary and change.

But custom development and maintenance are just too expensive for many businesses.

Some companies buy data marts that they hope will provide turnkey solutions. They include the "get started quick" product bundles from vendors such as NCR, Sybase, SAS Institute and Information Builders, along with data marts based on products from Informatica, Sagent, Broadbase and IBM's Visual Warehouse.

Those data marts give you a technical capability, but usually they require extensive customization to do something really useful. How much that costs depends on how far you want to go to reflect your business in the data mart; consultants cost a couple of thousand of dollars per day. So users often skimp on customization and wind up with a data mart with a fairly generic query capability that limits its return on investment (ROI).

What's needed and what vendors are starting to supply is a depth of business content that lets you exploit the data warehousing opportunities for your industry (vertical applications) or business functions (horizontal applications). This content needs to be built in.

Industry-specific templates offer that for data warehousing. Red Brick, for example, has industry templates that address the types of business problems each industry commonly faces. The templates leverage what Red Brick consultants have learned about ROI opportunities in these industries. They also make the data warehouse easier to install and customize.

Another example: Various AS/400 independent software vendors have created a wide range of template-based industry-specific data mart systems. Many can draw data directly from OLTP application packages. Along with the templates, vendors also may bundle consulting services, offering experts who know both the vendor's product and the industry.

Other vendors go further and offer packages that are full applications for data warehousing and data mining. IBM offers the Fraud and Abuse Management System, a data mining application for a data mart that helps insurance companies save millions by identifying suspect patterns.

Platinum is notable for its RiskAdvisor, an insurance application that is essentially a robust enterprise data warehouse in a box. Apertus Carleton emphasizes the applications in industries such as health care and financial services by capitalizing on its extraction strength and data integration from multiple varied sources.

MARKET PACKAGING

Expect to see smart data warehousing vendors develop and market packaged products that do even more to help a company achieve ROI by improving business performance. Such packages have to do two things: take the technical burden from the user without limiting scalability or flexibility, and supply robust business content. Not everyone needs or wants a packaged data warehouse. But many small and midsize businesses do, as do departments within larger companies that don't have the resources to build and manage a data warehouse or data mart. They shouldn't have to. A well-crafted package or application template builds in this expertise. □

Atre is president of Atre, Inc., a consulting firm in Port Chester, N.Y., that specializes in data warehousing and database technology. Her Internet address is shaku@atre.com.

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COURT MAST

Managing

By Alan S. Horowitz

TAKE RISKS. LEARN FROM YOUR MISTAKES. That's easier said than done. But there are ways to transform failure into success, as Wells Fargo's Barry Lynn and others have learned.

WELLS FARGO BANK has a good market-share chunk of customers who use online banking — about 500,000 of the bank's 4 million users worldwide, says Barry Lynn, the bank's executive vice president and chief information officer.

Sounds like quite a success. It is now, but it wasn't always. "We developed our Internet site three times before it worked right," Lynn admits. An unfriendly graphical user interface and a confusing sign-up procedure were a couple of reasons the project failed initially.

Failure. It's often easier to avoid than accept. And many in information systems will do almost anything other than risk failure. Yet some people think failure is helpful, even desirable. Bill Walsh, former coach of the National Football League's San Francisco 49ers, wrote the following in *Forbes ASAP:* "The key to long-range success in sports — and in business — isn't how you deal with winning but how you deal with losing."

In fact, if you rank experiences, failure is among the most valuable because it's common to learn more from failure than from success.

If you're highly risk-averse, know that it's possible to fail and still survive. And that the benefits of taking risks often outweigh the consequences of blowing it. Here are some failure rules to live by:

The word on words
A new column, "Jargon Judge" renders an opinion on technical terms.
Page 73

OF FAILURE

CONCRETELY DEMONSTRATE YOUR SUPPORT OF FAILURE

MANY IS MANAGERS say they encourage failure, but then don't back that up. Not Lynn. To reflect his notion that failure is good, Lynn has a program he calls "falling forward," so named to demonstrate that falling can propel an individual — and an organization — to new successes. Each month, an internal publication at the bank has a falling forward story that gives kudos to those who failed with honor (robustly, as it were).

But Lynn does differentiate between types of failures. He breaks them down into two categories: stupid, uncaring failures, in which the individual who failed should be punished; and calculated risks or honest mistakes, which were risk-worthy and valuable learning experiences.

The latter is the type of failure Lynn tolerates, even promotes.

FORGET AVOIDING FAILURE

THERE'S EVIDENCE that working to avoid failure can be a fool's game. Fred Magee, vice president and research director at Gartner Group, Inc., in Stamford, Conn., studied failure and found that more than 80% of all new IS initiatives failed to meet at least one predefined goal. Magee doesn't view this as bad; instead he considers it primarily a question of perception. "Best-in-class organizations recognize that no complex project succeeds in accomplishing all it was designed for. [It] recognizes that the modern IT infrastructure is a continuum of planned and unplanned change," he wrote in a July 1996 research report.

Someone once observed that tennis star Jimmy Connors never lost a match, he just ran out of time — a reflection of his never-give-up, never-fail attitude. Darwin A. John, managing director of information and communication systems at The Church of Jesus Christ of Latter-day Saints, in Salt Lake City, holds the same view. "Lots of progress is made by what we might label as failure [that] you can also label as small progress or learning," John says.

Author and management guru Tom Peters berates IS folk, proclaiming, "[Failure] is normal, for God's sake! What I want to tell [IS managers] is that if they're not failing, then they're not serious about the new technologies. Because nobody knows how all this is going to sort itself out." A lot of time and energy can be wasted trying to avoid the inevitable — failure.

FAILURE ISN'T FATAL – IF YOU'RE TRUSTED

EILEEN STRIDER, a principal at Strider & Cline consulting firm in Kansas City, Mo., until recently was CIO at Universal Underwriters Insurance Group. While there, she hired an outside vendor to develop a system. One year and about a million dollars later, she gave up and canceled the project.

Her head didn't roll, which she attributes to several things she did. Strider held weekly meetings with the business side to tell them how the project was going, was honest and open about the project's progress and established trust between her and the project's other important players, including the CEO and the lead person on the business side.

"I think if the senior business person and my boss, the CEO, had not known me and known my intentions were good and I was trying very hard, I think they would have fired me," she says. Gain the trust and respect of those in your organization, and your chances of losing your head decline.

THE TRUTH HELPS

BE TRUTHFUL. David Schmaltz, president of True North PGS, Inc., a project management consulting firm in Portland, Ore., recently worked on a project for a manufacturer in which management gave IS an "impossible" deadline. Previously, IS would have just gone ahead as if it could make deadline and then at a really inconvenient time, the truth would be disclosed, Schmaltz says. "This time they decided they would speak the truth," he says.

Top management didn't want to hear it, but eventually a compromise was reached: A series of milestones were set so any slip-ups would be revealed earlier rather than later. "They still have an impossible date, but they have a process where they can talk about more truth as their experience tells them what's really going to happen," Schmaltz says. The end result: No one got hurt as a result of failing to meet the original deadline.

UNPROGRAM THE FEAR OF FAILURE

ALTHOUGH FAILURE IS NATURAL, we often take unnatural steps to avoid it. IS managers must reprogram their employees to accept failure. That was demonstrated to Magee when he spoke with a CIO who asked a team of employees to work with customers to learn how to best use various technologies. He didn't want success stories, he wanted war stories — things that worked and, especially, things that didn't.

What didn't work was the project itself. The CIO wanted his team members to learn from their failures. But they were programmed to succeed and felt uncomfortable with failure. So they refused to fail. "The team was incapable — without extra training — of failing," Magee says. You will likely need to train your people to feel comfortable with failure.

A TECHNIQUE TO TURN YOUR PEOPLE INTO RISK-TAKERS

WHEN NAOMI KARTEN, now a management consultant in Randolph, Mass., was a CIO, she fostered risk-taking by giving each of her employees two small and one large peel-and-stick dots, along with a set of rules governing their use. "These allowed each person two small screw-ups and one outrageous screw-up during the course of a year," she says. Her employees incurred no negative consequences as long as they turned in the appropriate dot and told her what had happened. If she heard about a screw-up from someone else, the guilty party was in big trouble. "It created a culture of 'nobody's perfect.' We can be human and still survive," she says.

"You have to manage by example," Lynn says. If you want to promote risk-taking in your organization, you have to make it clear you're willing to live with failure. That's why he publicizes failures and rewards them.

Encourage your people to admit failure early, while the costs are still low, Karten recommends.

And create a risk-accepting culture. "Anyone can buy the same expertise we can. So we really have to [create] a culture and start taking more risks and experimenting more." Is there a payoff for risking failure? Lynn thinks there is. He attributes his bank's dominant position in the online banking industry in large part to his encouragement of risk-taking and accepting failure. Small failures can add up to major successes. □

COMPUTERWORLD
Have you learned from failure? Share your experiences at our Web site (www.computerworld.com) in a forum this week hosted by Rick Saia, associate editor for Managing.

Horowitz is a freelance writer in Salt Lake City.

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RESOURCES: FOR IS MANAGERS

BOOKSHELF

Net Income

By Wally Bock and Jeff Senne
Van Nostrand Rheinhold, New York. 1997; 278 pages: $29.95 (paperback)

Use this as a handy reference book if you're developing — or refining — an Internet and/or intranet strategy to connect your entire organization. The authors, who own their own businesses that help companies transact business on the Internet, have written several books between them. They get to their audience very effectively in this well-organized work.

Bock and Senne touch all the Internet bases — from using the World Wide Web as an internal communications tool to enhancing a company's product development processes. They also use some examples from corporate America to help make their points. For example, they tout Lockheed Martin Corp.'s intranet as a useful way of detailing policies and procedures for the 84 companies under the $27 billion aerospace giant's umbrella.

The authors open the book by prodding readers to answer some key questions for their businesses and then to look at seven issues. Those issues form the acronym TACTICS, which can help users implement an Internet strategy: Think links. Automate. Customize. Transform. Inside/outside. Core functions/big payoffs. Start now.

Bock and Senne employ TACTICS at the end of nearly every chapter, each of which looks at a different aspect of a business. That lets the reader read a chapter, then close the book and think about the chapter before going on.

Net Income will help IS managers think strategically about the Internet and how it could help the business. The pointers and examples should offer plenty of insight. — *Rick Saia*

Surviving the Top 10 Challenges of Software Testing: A People-Oriented Approach

By William E. Perry and Randall W. Rice
Dorset House Publishing, New York, 1997; 216 pages, $32.70 (paperback)

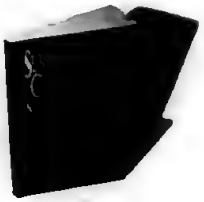
Software testers are damned if they do and damned if they don't. By the time a project gets to them, it's almost always behind schedule. If they take the time they should take for comprehensive testing, they are perceived as holding up completion. But if they push it through with cursory testing and miss any software bugs, they'll take the brunt of the blame.

Testing is a field full of political land mines, and testers know that on one level. When the authors quizzed hundreds of testers, they found that their top 10 challenges involved people rather than technology.

Even so, testers typically think of themselves as technicians, ignoring the political and people skills that could make their lives and work easier and more productive.

This book aims to change that by teaching testers to combine their people skills and technical skills into an integrated whole. It begins with a self-assessment to help testers identify which of the top 10 challenges are particularly daunting to them.

The next 10 chapters deal with each problem individually, so the reader can hit the chapters that deal with his particular bugaboos.



The chapter titled "Building Relationships with Developers," for example, opens with a case study in which an adversarial attitude between testers and developers almost derailed a project.

It follows with discussions about the effect that negative relationship had on testing, offers solutions, discusses possible impediments and ways around them and closes with guidelines for success and a plan of action.

The book is a free of jargon and immensely readable, making it equally accessible to testers, developers and project managers.

You don't have to be a tester to profit from its insights.

— *Kathleen Melymuka*

JARGON JUDGE

BY ANNE MCCRORY

"Enterprise system"

It's time to put the kibosh on "enterprise system." You know, that official-sounding term that somebody invoked somewhere along the way when he meant a system that employees in many departments and locations might use. That term on which people often pile even more arcane modifiers, yielding such horrors as "mission-critical enterprise system" and "enterprise resource planning (ERP) system."

You might argue that those terms are now lingua franca for vendors and many IS types. I won't fight you there. But say mission-critical enterprise system to your company's accountants (or any technological newbie group), and they might picture the Starship Enterprise hurtling through space, its navigation system stuck, Captain Kirk madly pressing buttons or trying to unjam the throttle as the ship lists this way and that. At least, that's what I envisioned, once upon a time. (As for ERP, I never even hazarded a guess.)

Of course, you can also argue that the word enterprise isn't the only thing that's confounding here.

Dissecting mission-critical, I might, for instance, say *Computerworld*'s mission is to provide IT information and analysis. But does that tell me what our mission-critical systems are? (I might cite our Web server and magazine production applications, but what about our reader database and sales tools?)

Similarly, if we had an ERP system, I might figure it would include our fiscal '99 budget, concerning, as that does, both resources and planning. But in fact, that would be only a tiny piece of such a system, which would offer applications that manage core business functions (finance, human resources, manufacturing) integrated across departments and tied to central data stores.

Still, the confusion all starts with enterprise, whose meaning outside IS circles is by no means intuitive. Our definition ("a business organization") is the third listed in *Webster's*, after "difficult project" and "readiness for initiative." It's also quite general — do you mean your whole company, or perhaps just your business unit?

I say we nix the lofty language and come down to earth. Say "companywide system" when that's what you mean.

It's simple. Instantly understandable. And will bring your audience back from the Enterprise, into our galaxy — and into the room with you.

IS SYSTEMS. NOT JUST A JOB— IT'S A VENTURE

PETER G.W. KEEN

longer about "development," "projects" and "operations." Its responsibility is to manage business ventures: commercial activities focused on ling goods and services that satisfy customers. Information systems needs strong s, marketing, selling, support and, above all, a continued focus on the customer.

It can't have all that without a radical shift to build IS around a new management position, the venture manager.

A venture manager looks after a system, application or technology area (such as a set of data mart tools) the way, say, brand managers at Proctor & Gamble or Kraft Foods look after a product line

IS venture managers will take care of everything to do with a product's development, packaging, marketing, support, enhancement, etc. But the product might be a set of payment services or data warehouse tools instead of Pert Shampoo or Kraft Macaroni and Cheese.

IS venture managers not only own a venture through its life cycle, but they manage it to make sure IS stays customer-focused. For example, a venture manager would make sure the programming team building a new application thinks of the help desk as an integral component of the venture, not a separate function.

After all, the help desk is a primary concern for anyone using a system; it should be for the programmers, too

A morning in the life of a venture manager for an electronic-commerce payments system venture — not an "application" or "project" or "system," but a business venture — might look like the following:

BREAKFAST: Meet with the marketing consultants and technical writers about revamping manuals; a client focus group shows they're getting too big again and lack business relevance. Fix now!

9 A.M.: Weekly development team meeting. Topics: Why isn't the marketing department using the Customer Segmentation Analysis tool kit? Is the problem one of training? Cost? System interface?

10 A.M.: Handle the vice president of marketing's request for help in winning the Megacar spare parts contract.

11 A.M.: Meet with the Technology Review group to present plans for adding a data mart for pricing analysis; need to be clear who will set up the technical team and interface with Sun and Informix.

LUNCH: Meet with IS desktop support team to plan support for rollout of the shipping transaction sets for the new international procurement system. Expect *big* initial user need for help

And so on.

I don't know of any IS organizations that are explicitly built around venture managers. I'd like to hear of examples, please — but it seems to me that this is the necessary anchor for the IS organization of tomorrow

IS needs venture managers because of the following.

1. We need a better handle on the lifetime costs and paybacks from systems. IS organizations have never had a life-cycle perspective on systems. IS work is largely organized around separate development, operations and maintenance and support groups. There is no one manager who looks at the total business value and economics of a system, including maintenance, support, training and how it affects and is affected by the business over its life cycle. That's why most companies don't have a clue about the post-implementation costs of even key applications, and why IS organizations allowed the total cost of ownership of networked PCs to bloat.

2. The classic IS midlevel leadership positions reflect our history, not our future. IS originated as systems development, and its historical organization and career and skill base were built on that. The core of the profession was programming, operations and project management. Development is detached from maintenance; support and education are add-ons. If you think of systems development as a venture, as bringing a product or service to market, you get a very different mind-set and set of priorities than those that mark the mainstream of IS thinking and practice. For example, those shameful toll-free customer disservice lines offered by PC vendors are a heritage of the separation of product development from what's vital to the customer — aftersales help.

3. We need talent coordinators who draw on people outside as well as inside the organization. The biggest blind alley in IS today is the belief that the main issue is how to recruit and retain staff. Forget about it — it can't be done. We're in the middle of the tightest labor market in decades. The range of needed specialties, skills and experiences is so broad that it requires a thick manual just to list them. IT professionals have increasing opportunities to freelance or work for IT vendors. Why should they work for a large IS shop?

Brand and project managers in firms such as Proctor & Gamble coordinate talent from many sources: outside advertising agencies and market research firms, packaging designers, materials experts, and inside groups such as marketing and sales.

IS venture managers need to be the same: coordinators, not developers or project managers.

They'll need an in-depth knowledge of their product base, its economics, customers, after-sales/development services, and, above all, the talent supply inside and outside the firm.

They'll need to be very flexible and be able to communicate well and widely. They'll need organizational smarts.

They may or may not have in-depth technical experience but should have good technology intuitions. Otherwise they'll be the victims of vendors, fad-providers and techies with their own focus and priorities.

But they'll be the core of the future for IS. Indeed, they will radically redefine IS. □

Keen's book: The Business Internet and Intranets, *was published this month by Harvard Business School Press. He can be contacted at peter@peterkeen.com.*

Review Center

Client/server financial software

Extending ERP's REACH

There are both benefits and headaches when users integrate best-of-breed financials with enterprise resource planning systems

By Thomas Hoffman

PAT ALLEN/SIS

Manufacturers and other companies with complex operations often swear by enterprise resource planning (ERP) systems to help them pull their far-flung functions — from materials management to accounting to sales distribution — together under one roof.

But although ERP systems provide companies with a solid operational backbone, they're often lacking when it comes to delivering special financial features such as robust budgeting or international consolidation.

Extending ERP, page 76

Extending ERP'S REACH

CONTINUED FROM PAGE 75

"Does an SAP or Baan take me all the way home? The answer is, unlikely," says Barry Wilderman, an analyst at Meta Group, Inc. in Stamford, Conn.

In their search for answers, many ERP users have elected to install so-called best-of-breed financial systems alongside their ERP suites.

The bad news is that it can cost "$200,000 to $2 million" and take up to six months to integrate a specialized budgeting system such as Hyperion Software Corp.'s Pillar system with SAP AG 's R/3 software, depending on the level of complexity, says Sandra Strauss, vice president of strategic initiatives at Cambridge Technology Partners in Chicago.

It can get even more expensive when you factor in repeat integration costs each time a company has to upgrade its best-of-breed or ERP software, Strauss says. "It's a huge issue," she says.

The good news is that ERP vendors such as SAP and The Baan Co. are moving to what they call component-based architectures this year through a strategy that analysts say uses object technology to help tie together those disparate systems more tightly.

Some combinations are more tightly integrated than others, thanks to partnering relationships between vendors such as Baan and Hyperion.

During the past few years, ERP vendors have opened up their tightly interwoven modules and created application programming interfaces (API) to connect to third-party systems such as those from Hyperion and Walker in San Francisco.

APIs work fine if you use the base accounting or financial software from the ERP vendor and merely use a Hyperion product merely as a simple reporting tool, says Klaus Schottenhamel, president of Plaut Consulting, Inc., an SAP R/3 integrator in Waltham, Mass.

Otherwise, Schottenhamel says, "it gets tricky if you try to break out the accounts payable package or the general ledger package."

It gets even trickier when companies try to integrate cross-functional reporting between various "feeder" systems, such as the marriage of financial, statistical and operational information, says Chris Brennan, a partner at KPMG Consulting, a unit of KPMG Peat Marwick LLP in Stamford, Conn.

"When you choose the best-of-breed route and sacrifice some level of integration, you sometimes end up with inconsistent data structures" between vendor files and customer files, Brennan says.

To prevent those kinds of problems, Brennan's team typically works with customers to develop a single, common coding scheme for files and accounts on the front end of such projects.

It took only four days of work for Rom Villaflor's team at Fujitsu to build the necessary links between SAP and Hyperion

CONJUNCTION JUNCTION

Typical integration "is done at the data level," where financial information is extracted from one system, say, a general ledger system, and sent in batches to a best-of-breed budgeting system, says Dan Sholler, an analyst at Meta Group.

To bridge those systems, companies can use middleware software developed by vendors such as Crossroads Systems, Inc. in Austin, Texas, and Cambridge, Mass.-based Oberon Software, Inc., Sholler says.

Customers such as Motorola, Inc. built their own interfaces and middleware systems.

Prior to installing Walker's financial reporting and consolidation software last July, the information systems staff for Motorola's messaging products division spent several months building a Unix-based middleware system that funnels data extracts from 20 general ledger systems worldwide each month.

Those include an Oracle Corp. financial suite that supports Motorola's U.S. operations, explains Cal Stuart, director of finance at Motorola's messaging division in Arlington Heights, Ill.

Data is then channeled from the middleware into the Walker software, which is used to generate management reports.

The combination of the Walker software and the homegrown middleware system has helped Motorola generate management reports in 29 hours instead of the 48 hours it used to take, Stuart says.

"It may not seem like a lot, but a few hours can make a huge difference in helping us review the numbers before they go to corporate," he says. "To a certain extent, we don't want to be too tightly integrated because we want our [business units] to have the flexibility to work on their own operations."

"To a certain extent, we don't want to be too tightly integrated because we want our [business units] to have the flexibility to work on their own operations."

– Cal Stuart, Motorola

PAINS AND GAINS

For some companies, the integration challenges have been worthwhile. Fujitsu Microelectronics, Inc., for example, once had to generate Microsoft Corp. Excel spreadsheets to analyze budget information from the R/3 system it installed in 1995.

The R/3 system made it very difficult for the San Jose, Calif.-based semiconductor maker to compare, say, a ratio of line-item expenses, with revenue. That was an effort that often took weeks until Fujitsu installed Hyperion's Enterprise system in June 1996, says Rom Villaflor, director of corporate accounting at Fujitsu.

Because Hyperion offers a set of utilities that helps customers transfer data among its software and other systems, Fujitsu's IS team had to spend only four days building ASCII files used to swap data between SAP R/3 and Hyperion Enterprise, Villaflor says.

The use of Hyperion's Enterprise has enabled Fujitsu to move from a monthly reporting structure to weekly structure and to react faster to industry changes, Villaflor says.

Other efforts have taken longer. Delta Air Lines in Atlanta, for example, spent two years installing and interfacing its Walker general ledger, accounts payable and other financial software with its mostly homegrown financial environment.

"There was a fairly significant effort required [to integrate], but it wasn't unreasonable once you factor in the multiple languages and requirements of other applications," says David Sexton, manager of financial planning at the airline.

Sexton says the two years of work included data conversion and software rollout. He said he isn't sure how many months it actually took Delta to integrate the software with its core financial suite.

Still, connecting best-of-breed financial software to legacy systems can often eat up 40% of the cost of moving to an ERP system, Wilderman says.

Sexton, for one, will be closely tracking the component-based architecture that Walker is moving to. "We're expecting to see an ease of integration" between Walker and other systems, he says.

Time will tell. □

Hoffman is Computerworld's senior editor, IS management, year 2000 and financial services.

"...and to my IT department... oh, god, (sniff) I told myself I wasn't gonna cry..."

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Sneak peek:

FINANCIALS

by James M. Connolly

Vendors of client/server financial systems don't have to deal just with integrating their software into enterprise resource planning (ERP) packages. Now they also have to worry about competing with ERP products in markets that are traditionally held by best-of-breed financial systems vendors. That's because ERP increasingly will be pitched at midsize corporations rather than only at industry giants.

Some financial software companies will react by partnering with ERP vendors such as SAP America, Inc., providing the ERP supplier with components such as modules aimed at vertical industries. Others will try to transform themselves into ERP suppliers. They will try to offer buyers in nonmanufacturing markets, such as insurance and banking, the software that will handle their financial needs and most of their other business processes.

That's one trend identified by Daniel B. Sholler, a senior research analyst at Meta Group, Inc. in Stamford, Conn. *Computerworld* asked Sholler to predict trends for the coming year or so and to outline what else users can expect in the client/server financial software market.

A variety of financial software companies will recast themselves as what Meta Group calls enterprise resource management players targeting specific business sectors, Sholler says. Platinum Software, Inc. has already started doing that by acquiring new modules such as help desk software, he says. Sholler and Meta Group also foresee the following trends:

- **Financial software vendors will push component strategies,** which will benefit the vendors themselves by making their software easier to maintain and easier to scale down for smaller customers. User companies should benefit, too. Sholler says, "The use of components allows for a different way of deploying an application. You don't have to create one or a handful of centralized control centers for your applications. You [can] put the application, or portions of it, in the area where it is needed."

- **Watch for vendors to turn up the volume on analysis tools.** Some financial software vendors already support analysis by adding in third-party decision support and data mart tools that help business managers track trends and identify financial problems. "We are starting to see this associated with virtually all of the financial systems. You are starting to see more information being made available from the systems and more analysis," Sholler says. Besides query tools, the analysis features may be as seemingly simple as what he calls an economic dashboard, a device that at a glance gives executives a sense of the financial state of their company.

- **The year 2000 challenge will continue to be a headache** for the financial software sector and for the managers who buy the products. "The market is still being very heavily driven by [year 2000] concerns. Unfortunately, the criteria to a [year 2000] concern is to at least get me something that does what we did before. It's a negative thing; it's a 'Don't blow up thing,' rather than a positive thing of 'Make me better.' " Sholler says. With IS shops focusing their efforts on fixing date-change problems, they won't be able to do what they should be doing in 1999 and 2000, which is making their financial software systems an integral part of an enterprise system, Sholler says. Current versions of client/server financial software are mostly year 2000-compliant, but users need to know how their vendors achieved that compliance.

- **Users can expect vendor support for the new euro currency,** beginning this quarter. But Sholler says companies that don't do a lot of European business should tackle year 2000 projects ahead of euro projects. Companies that do business in Europe should be prepared to sell and buy using euros by Jan. 1, 1999.

- **Windows NT servers** are emerging as legitimate deployment computers for client/server financial packages. Sholler says NT still has some scalability questions, running into problems when a server supports more than 200 consecutive users. But he says he has seen companies use it successfully.

- **There is growing interest in collaborative analysis,** in which financial data is combined with data from other enterprise applications in a corporate data warehouse.

- **Expect more tools to support financial consolidation,** reporting and budgeting, which a few vendors — including Hyperion Software Corp. and Longview Associates, Inc. — now handle through add-ons, but which most users typically have done through home-built programs. □

UP TO THE MINUTE

The following clips regarding client/server financial applications appeared recently in *Computerworld*:

- **Financial software maker The Sage Group PLC** will acquire State of the Art, Inc. Both companies make accounting software for midsize enterprises. @Computerworld, Jan. 28.

- **SAP AG rolled out the beta version** of its R/3 Release 4.0 to about 40 customers. It is the first R/3 release that takes advantage of SAP's component strategy, which is expected to be reflected in new functions such as budget consolidation. @Computerworld, Jan. 21.

- **SAP AG is making it easier for users** to model business processes and map out implementation strategy of the R/3 enterprise resource planning system. Business Engineer 4.0 includes an easier-to-use business configurator — which is available with a Hypertext Markup Language interface — and vertically oriented versions of Business Engineer. Dec. 12, 1997.

- **Oracle Corp. has announced** plans to move all its client/server applications to a World Wide Web-based, server-centric architecture by the middle of 1998. The new platform will put all the processing and transaction logic on a server, and users will access the system through Java-enabled Web browsers on PCs or network computers. Nov. 11, 1997.

- **PeopleSoft is launching** a full-scale assault on international markets and toning up its financial applications with the next release of its applications package, PeopleSoft 7.5. Sept. 12, 1997.

RESOURCES

For more information about client/server financial applications, check out the following books, conferences and Web sites:

SEMINARS, CONFERENCES, ETC.

SoftEx in Accounting & Finance
Feb. 10-11
Hyatt Regency
San Francisco

May 27-28
Chicago

Sept. 2-3
New York

SoftEx in Sales, Marketing & Customer Service
May 12-13
Airport Marriott
San Francisco
(415) 842-7373
www.softinfo.com

Hyperion Interact 98: 14th Annual Hyperion User Conference
April 19-22
Walt Disney World Swan and Dolphin
Orlando, Fla.
(508) 652-1023

Oracle Education Seminars: Financial Applications
Day 1: Budgeting and forecasting in Oracle financial applications
Day 2: Analysis and reporting in Oracle financial applications
Various regional dates
(800) 633-0575
www.education.oracle.com/seminars

1998 PeopleSoft European Users Conference
May 11-14
Newport Bay Convention Center
Marne-La-Vallee
Paris
44-0-1296-336997

1998 PeopleSoft U.S. Users Conference
Nov. 1-5
San Francisco
(510) 225-3000

BOOKS

Implementing SAP R/3: How to Introduce a Large System into a Large Organization, 2nd Edition
By Nancy H. Bancroft, Henning Seip and Andrea Sprengel
Prentice Hall, September 1997
$46

The Technology Guide to Accounting Software: A Handbook for Evaluating Vendor Applications
By Stewart McKie
Duke Communications, April 1997
$59

Using SAP R/3 FI: Beyond Process Re-engineering
By Ben Rockefeller
John Wiley & Sons, January 1998
$95

Client/Server Accounting: Re-engineering your Account Systems
By Stewart McKie
John Wiley & Sons, January 1997
$59.95

Implementing PeopleSoft Financials: A Guide for Success
By Early Stephens
Manning Publications Co., January 1997
$47

In Depth

Pentium. PowerBook. DeskJet. Ever wonder who dreams up all those product names? We interview him

in

GARY LAUFMAN

ONLY

O HARD-NOSED IS MANAGER wants to believe that his purchasing decisions are influenced by something as inconsequential, as ephemeral, as unscientific as a product name.

But they are.

Lexicon Branding, Inc. is a 17-year-old Sausalito, Calif., company that melds advertising and linguistics techniques to create new product and corporate names. The 15-employee firm does 60% of its business in the high-tech industry. You may be familiar with the company's work. Does DeskJet sound familiar? PowerBook? How about a little product called Pentium?

David Placek, Lexicon Branding's founder and president, recently sat down with Steve Alexander to talk about how the company names a computer product and how even skeptical IS managers can be swayed.

In name only, page 80

inNAMEONLY

CONTINUED FROM PAGE 79

COMPUTERWORLD: How can a good or bad name affect a computer product?

PLACEK: A product name is a lot like your business card, it's the first thing you hand someone. And the way that name feels and looks affects people. When you have a product, whether it's a car or a new type of disk drive, the name brings meaning to it.

CW: Where do companies go wrong with product names?

PLACEK: The biggest mistake companies make today is being too descriptive with their names.

If you look at the name Pentium, the difference between that and an alternative name, such as Prochip, is that Prochip is very descriptive and one-dimensional. As a vessel to carry ideas into the marketplace, Prochip doesn't have the strength and flexibility of Pentium. With a name like Pentium, you can talk about speed and power and innovation. It lets you build a personality for the product over time.

With DeskJet, the name was not that descriptive, but it was loaded with personality because desks don't have jets on them. And remember, the DeskJet came into the market at a time when people had to go somewhere else for printing and wait for the corporate printer. So the word "desk" carried an important message as well.

But there are occasions when descriptiveness is effective. With the Apple PowerBook, we were bringing a new idea to market — power in a notebook computer as light as a book. There is a promise in that name, and when you make literal or subtle promises in a name, they can be very important to a product.

CW: Why do corporations pay you to think up new product names rather than do it themselves?

PLACEK: The old paradigm of having pizza and beer to come up with a product name has given way to another paradigm that says a name is the cornerstone of the company's marketing efforts, and you'd better think this through and tap in to some expertise.

I don't think it's an affordable business proposition for most companies to do that themselves. To have 15 to 20 people internally with expertise in linguistics, trademark law and how you create names would be very inefficient.

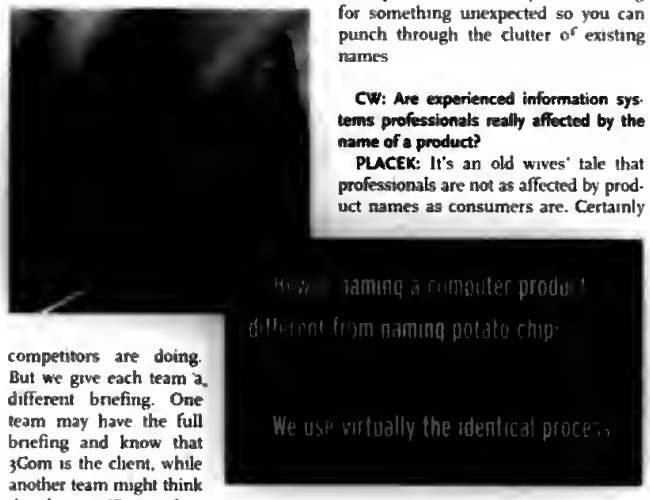
What often seals a work agreement for us is the trademark clutter that has become almost overwhelming. About 15 years ago, Class Nine trademarks — which is where computer names fit — included about 15,000 names. Today, there are more than 300,000. But there are still only 26 letters in the alphabet.

CW: What process do you use to arrive at a name?

PLACEK: We gather insights from various perspectives, the reaction of customers, the principles of linguistics, discussions with clients about how the ads are going to be written and how they will be positioned.

For any given assignment, we launch between two and five creative teams, each with two to three people. Those teams also have linguists who help identify words and word parts for achieving certain specific objectives, such as the I-U-M in Pentium, which carries the connotation of small or powerful.

The teams start off with a comprehensive briefing on what the client and the competitors are doing. But we give each team a different briefing. One team may have the full briefing and know that 3Com is the client, while another team might think the client is IBM, and so they immediately get different images in mind. We do that because diversity is very important to the creative business, and if we gave everyone the same briefing, we'd get too many of the same ideas.



Usually, the teams take five or six days to do their work. Then we discuss the findings of one or two groups. We look for what's unexpected, what's provocative in a name. Then we look at legal aspects to weed out names. After that, we have linguists look at the strengths and weaknesses of the names.

By doing those things, we get 100 to 200 candidate names that have real merit. Then we go through another legal screen and usually lose half the names. Once we get to about 100 names, we take one or two hours to prioritize them.

We typically make a presentation to the client of 25 to 50 names. When we finish with the customer, legal and linguistic evaluations of those names, we might have three to five to choose from.

CW: How is naming a computer product different from naming potato chips?

PLACEK: We use virtually the identical naming process. But one of the reasons for the success of a high-tech product is that it's either faster, easier to use or more powerful — consumer brands don't have those underlying universal reasons for being. And so those are core attributes you always have to keep in mind when you create a name in high tech. You must reinforce those things, although you don't have to communicate them directly.

The second rule for naming high-tech products is that you're looking for something unexpected so you can punch through the clutter of existing names.

CW: Are experienced information systems professionals really affected by the name of a product?

PLACEK: It's an old wives' tale that professionals are not as affected by product names as consumers are. Certainly in any type of IT situation you have speed-and-feed issues, and you need to get over those. But when you're in a situation where the competition has product and pricing parity, the technological arguments become pretty close, and it's the power of a brand — its personality and what it means to you — that will carry the day.

But it is harder to come up with product names for IT people. In IT, a product name must be consistent with the technology, support the speed-and-feed issues and then, once you get over those hurdles, have a personality that can evolve.

CW: Are there names you avoid because they just don't sound techie enough?

PLACEK: Sure. A linguist will tell you that the alphabet can be divided into softer and harder sounds. Consonants like L and M and N and most vowels tend to be soft, and so those letters tend to communicate smoothness and ease.

If you are naming an advanced network switch that really handles lots of computers on a network, you want to be careful about having that name loaded with soft sounds. Because people who buy that type of product are looking for something that's effective, that gets the job done, that's up and running. When you fill a name with softer letters, it tends not to communicate effectiveness and dependability.

In addition, there are certainly words in high tech to avoid. One of them is Net: there are over 600 registered trademarks that use it. Web is another word that is very cluttered, with about 400 active trademark registrations. Names that use those words usually do not help your client, because they just get lost in the noise.

CW: What's the best name Lexicon has ever come up with?

PLACEK: Pentium, because it was so difficult to come up with and is now probably the most recognized technological brand in the world. Because Intel has a lot of marketing power, I knew that whatever we came up with would be a major brand in the world. But there's always a little luck in the process. Pentium had a beautiful look and a great sound.

CW: What's one of the worst technology product names?

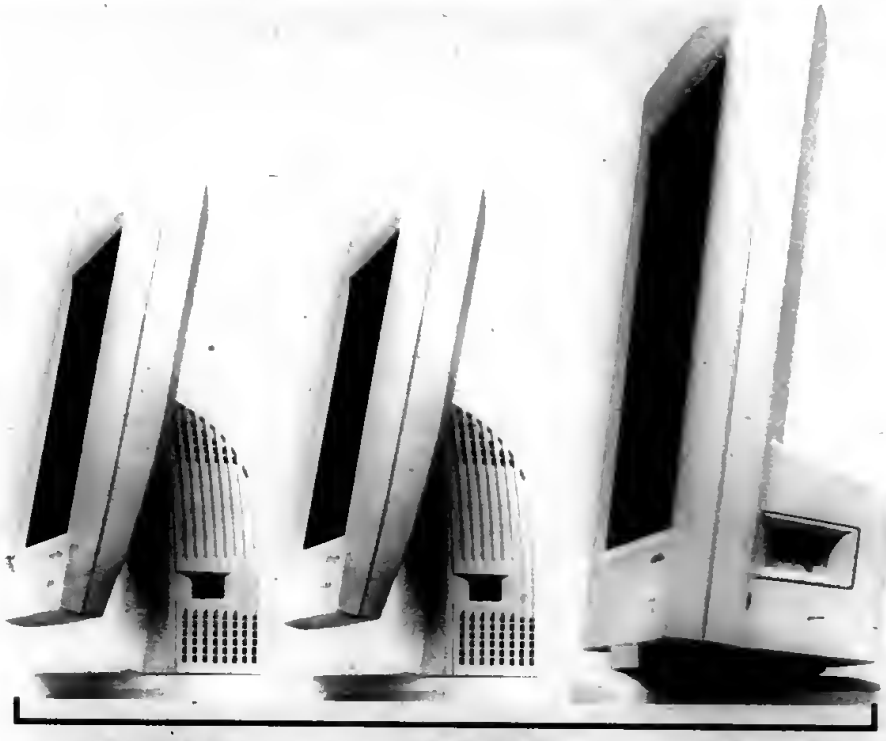
PLACEK: I wonder about the long-term effectiveness of the name Yahoo. Search engines are becoming more sophisticated and facing more competition. I suspect they will evolve into more intelligent agents and searchers. And when that happens, I wonder if Yahoo is going to have the kinds of connotations that are needed. The name has playfulness and an in-your-face quality, but over a long period of time, there may be some problems there.

CW: How much are you paid for thinking up product names?

PLACEK: Our fees are $30,000 to $50,000 for most product assignments and $50,000 to $75,000 for a new corporate name. The most we've ever been paid is a little over $120,000, but I can't tell you the client's name because we signed a nondisclosure agreement.

We'll do around 150 to 200 assignments in a year. □

Alexander is a freelance writer in Edina, Minn.



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Brightness	200 cd/m²	180 cd/m²	150 cd/m²
160° XtraView Technology	no	yes	yes

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IT Careers

RETENTION GETTERS

The 25 companies that excel at IT RETENTION

BY ALAN R. EARLS

JOHN ANDREWS used to think he had things under control. As chief information officer at CSX Technology, (the information systems unit of CSX Corp.) in Jacksonville, Fla., his recruiting needs were manageable. He had become accustomed to having a stable and reliable IS workforce. Life was good.

Then, two years ago, a major employer in the region embarked on a crash year 2000 project, offering IS salaries 25% to 45% above the market rate. Information technology staffs throughout the region were ripe for the picking. Retention, which Andrews had pretty much taken for granted, suddenly became Job One.

Sound familiar? Today, successful IS managers must play a role similar to a career counselor. They must mediate between the needs of their much-in-demand IS employees and the opportunities available in the workplace.

In a survey of 240 companies that participated in the Annual Best Places to Work survey — to be released later this year — *Computerworld* identified the top 25 IS employers in retention. For the most part, those IS organizations are at-large, Fortune 500 companies. Although these "retention getters" have different formulas, prominent features in nearly all of their retention strategies include mentoring programs, well-developed career ladders, competitive — though not lavish — compensation and strong attention to the needs of employees.

And paying attention to employees does produce results: For the top 25, attrition rates are mostly in the single digits, sometimes the low single digits. Here's a look at what a few of these leading retention programs are doing:

GREATER VOICE, GREATER OPTIONS

In the past, IS professionals faced a "glass house ceiling." If you had a technical bent, you had to switch to a management track for continued career growth, says Joe Smialowski, who has been CIO at Sears, Roebuck and Co. since 1993. Sears has changed that scenario, implementing multiple career paths for IS professionals.

"It used to be that the management level was as far as you could go if you chose a technical path, but now we have mostly equal rungs all the way up — just like general management," Smialowski says.

Offering alternative career paths is becoming increasingly important as many organizations flatten the IS ranks. Quite simply, there is less demand for traditional IS managers, but growing demand for highly skilled IS specialists. That puts greater demand on job satisfaction levels.

In an effort to keep up with simmering employee issues, Sears each year conducts the My Opinion Counts survey. It measures employee views on opportunities within Sears, teamwork and other aspects of the workplace.

And, like others in Sears management, Smialowski knows employee opinions really do count: Part of his annual compensation is tied to employee satisfaction goals — what he calls a 360-degree feedback process.

INCENTIVES

Obviously, money is an important component in any retention effort, though Smialowski argues it isn't the No. 1 ingredient for success. Sears has an annual incentive plan based on a mixture of overall company success and the success of the particular business units an IS person supports.

Together, those factors account for 11% of compensation. An additional 1% is pegged to individual performance goals.

IS EVERYBODY HAPPY?

"I have learned that a key to retention is providing employees with a line of sight for their career growth," says Bob Monastero, director of human resources at the IS department at Xerox Corp. in Rochester, N.Y. Monastero credits an annual employee satisfaction survey with providing insight that has helped Xerox maintain single-digit turnover.

As at Sears, Monastero and the IS managers at Xerox have a lot riding on keeping the rank and file happy in the 800-person, global operation. "Ten percent of my annual bonus is tied to employee satisfaction," Monastero says.

And satisfaction here is key. Four years ago, Xerox passed most of its IS staff over to outsourcer, Electronic Data Systems Corp. The remaining staffers are considered mission-critical.

The annual satisfaction survey is a vital element in retaining employees. Employee responses are closely evaluated to show where staff loyalty might be vulnerable. "That gives us the opportunity to look at the weak areas and try and correct them," Monastero says.

Monastero also compares results with those typical at other Fortune 500 companies.

Learning about employee needs and developing retention strategies has resulted in a four-pronged retention program.

One element is working conditions. At employees' request, Xerox now lets workers telecommute, work part time and job share.

Another program element is skills development — lots of it. "We have learned [from our surveys] that for employees, maintaining technical and business skills is very important. So Xerox has loosened its purse strings and now funds almost any educational program that has a job connection," Monastero says.

In practice, that has meant providing full funding for employees seeking certification or individual courses as well as those chasing their master's degree, he says.

As long as the training is related to an employee's work and the employee feels it would be valuable, Xerox writes the check.

REAL BENEFITS

A third program element recognizes the changing IS workforce. Monastero is looking at alternative career advancement opportunities for IS professionals who aren't lured by traditional management.

As for traditional benefits at Xerox, this fourth element includes profit sharing and bonuses.

"Every employee is on a corporate profit-sharing program, and over the last two years, we have been providing about 10% above base pay," Monastero says. "We [also] have every employee on a bonus program, so their financial opportunity is higher than in the past. Compensation is tied to both personal and corporate performance as well as the performance of the IS unit."

Ranking	Company	Location	Individual employee bonuses	Company matching 401(k)	Elder care	Laptop PC for all IS employees	Flexible hours	On-site fitness center	% IS turnover in 1996	% base salary	% IS department performance	% companywide performance
1	Xerox Corp.	Rochester, N.Y.	•	•	•	•	•	•	2-4%	0	10%+	50%	5%	5%	30%
2	Office Depot, Inc.	Delray Beach, Fla.	•	•	•	•	•	•	<2%	0	10%+	85%	0	0	7%
3	SBC Communications, Inc.	San Antonio	•	•	•	•	•	•	5-7%	0	5-6%	0	0	0	0
4	3Com Corp.	Santa Clara, Calif.	•	•	•	•	•	•	5-7%	0	10%+	70%	5%	5%	10%
5	Corning, Inc.	Corning, N.Y.	•	•	•	•	•	•	2-4%	0	10%+	86%	0	0	2%
6	AT&T Corp.	Basking ridge, N.J.	•	•	•	•	•	•	5-7%	0	10%+	70%	0	0	15%
7	TransAmerica Corp.	San Francisco	•	•	•	•	•	•	<2%	0	10%+	80%	0	0	0
8	Solectron Corp.	Milipitas, Calif.	•	•	•	•	•	•	<2%	0	9-10%	85%	0	5%	5%
9	Sears, Roebuck and Co.	Hoffman Estates, Ill.	•	•	•	•	•	•	8-10%	0	9-10%	88%	1%	3%	7%
10	Fleet Financial Group, Inc.	Providence, R.I.	•	•	•	•	•	•	5-7%	0	10%+	75%	0	0	10%
11	Cincinnati Financial Corp.	Fairfield, Ohio	•	•	•	•	•	•	5-7%	0	10%+	80%	0	0	5%
12	Reliastar Financial Corp.	Minneapolis	•	•	•	•	•	•	11-14%	0	7-8%	0	0	5%	5%
13	KPMG Peat Marwick	Montvale, N.J.	•	•	•	•	•	•	8-10%	0	10%+	80%	10%	10%	10%
14	Avnet, Inc.	Chandler, Ariz.	•	•	•	•	•	•	<2%	0	7-8%	70%	5%	5%	15%
15	Teco Energy, Inc.	Tampa, Fla.	•	•	•	•	•	•	2-4%	0	10%+	82%	4%	0	10%
16	Firstar Corp.	Brookfield, Wis.	•	•	•	•	•	•	5-7%	0	10%+	90%	0	0	1%
17	Navistar International Corp.	Chicago	•	•	•	•	•	•	8-10%	0	10%+	80%	4%	4%	6%
18	Union Camp Corp.	Wayne, N.J.	•	•	•	•	•	•	5-7%	0	7-8%	80%	5%	5%	10%
19	Eastman Chemical Corp.	Kingsport, Tenn.	•	•	•	•	•	•	<2%	0	10%+	76%	0	0	24%
20	Amgen, Inc.	Thousand Oaks, Calif.	•	•	•	•	•	•	5-7%	0	7-8%	75%	0	0	10%
21	Mead Corp.	Dayton, Ohio	•	•	•	•	•	•	2-4%	0	5-6%	80%	0	0	0
22	Champion Enterprise, Inc.	Auburn Hills, Minn.	•	•	•	•	•	•	<2%	0	7-8%	70%	2%	0	26%
23	Brooklyn Union Gas	Brooklyn, N.Y.	•	•	•	•	•	•	5-7%	0	7-8%	90%	5%	0	5%
24	CSX Corp.	Jacksonville, Fla.	•	•	•	•	•	•	11-14%	0	10%+	70%	0	5%	5%
25	Bindley Western Industries, Inc.	Indianapolis	•	•	•	•	•	•	<2%	0	7-8%	88%	1%	0	8%

CONSIDER YOURSELF . . . ONE OF THE FAMILY

At Corning, Inc. in Corning, N.Y., the corporate infrastructure is viewed in terms of its ability to support employees. And according to Gerrie Storch, human resources manager for IT, from the moment employees join the company, Corning makes every effort to give them full access to the tools and support they need.

Like Xerox, Corning offers a panoply of benefits and a competitive salary structure. And it takes advantage of its local labor market economics. But Storch says she also has a retention secret — she makes sure employees don't stew.

"We try to take away the dissatisfiers," she says.

That means having a strong program for training supervisors, ensuring that they are effective and able to get new employees oriented as soon as they come aboard and giving new employees a proper introduction to Corning corporate culture. It also means acknowledging internally where the organization needs improvement.

"When people come into the company, they are assigned a buddy — another employee — who can help them with questions, solving problems and getting acclimated," Storch says. The program helps keep employees from feeling lost, alienated or frustrated.

STAYING ON JUST A LITTLE BIT LONGER

Dennis Rygwalski, director of IS at Fleet Financial Group, Inc. in Providence, R.I., has deconstructed the retention problem. His conclusion: He wins if he gets employees to stay on just a bit longer than the average for his industry.

Success in the retention game isn't to keep everyone forever, Rygwalski says, but simply to increase the average duration of employment. He estimates that three or four years is typical across the industry. If he can raise that average by an additional year or two, he says he will have accomplished a great deal.

One strategy has been to actively recruit new hires fresh from college and then build a loyal relationship with them. "We have established a training program for them as well as a coaching process, and each one is assigned a mentor," Rygwalski says.

To keep them satisfied, "we host a series of breakfast meetings for new employees where they can sound off and let us know what aspects of Fleet haven't lived up to their expectations," he says.

RETAINING THE TROOPS

In a similar vein, the retention motto for Fleet might well be "Think globally, act locally." Fleet is ranked as one of the nation's largest financial institutions, but its IS operations are scattered across markets in second-tier cities: Providence, Hartford, Conn., and Albany, N.Y.

Still, Rygwalski acknowledges, the lure of more dollars in a red-hot market is difficult to fight. As a result, Fleet has had to implement a retention program specifically targeted at its year 2000 staff — with bonuses available to those who stay on until the job is done. And, he adds, "We are constantly looking at our salary levels to make sure they are adjusted to the market."

THE REAL YEAR 2000 LESSON

Although Andrews' year 2000 work at CSX was a thing of the past, he was quick to apply the retention lessons he learned when recruiters began trying to lure away his people. "For the last year and a half, we have implemented a review of market salaries every six months to make sure we don't get blindsided," he says.

What's more, Andrews makes sure employees realize that if it's exciting technologies and opportunities they want, look no further. "We have been early adopters of many of the newest technologies, including 6 million lines of Java code," he says. That figure exceeds any other single location in the world, Andrews says.

The company also has a recognition program, quarterly bonuses, extensive training opportunities, frequent communications with employees and a casual dress policy.

To make sure that employees really do think of CSX as a place to grow, Andrews has developed and implemented a browser-enabled tool to let people develop their own career map within the organization.

"If someone wants my job," Andrews quips, "this tool helps them understand the requirements and paths to get there." □

Earls is a freelance writer in Franklin, Mass.

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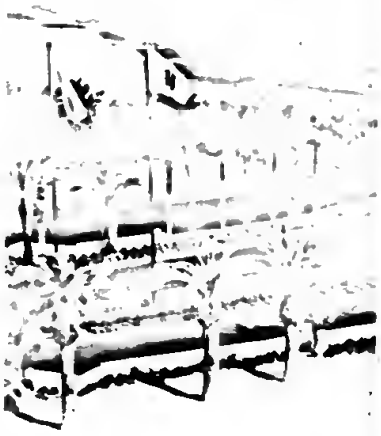

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RETENTION DEFICIT LESSONS

BY ALAN R. EARLS

Despite the best intentions, many formal retention efforts aren't what employees really want

IF YOU ARE a manager who loses sleep over your turnover problems and thinks the solution may be launching a formal retention program, you may be wrong.

Many on the front line say keeping information systems employees isn't as simple as offering them new perks, lighter workloads or fatter salaries, though each of those elements plays a part. Instead, managers say, keeping employees depends on a company's willingness to reach beyond traditions and circumvent one-size-fits-all human resources policies. It means winning loyalty one person at a time.

Sometimes elaborate and expensive retention efforts can backfire, effectively advertising to your employees how vulnerable you are and how many opportunities are available elsewhere. Often they are symptoms of IS environments that don't encourage ideas, or don't promote communications.

John Burns, vice president for year 2000 issues at the Canadian Imperial Bank of Commerce in Toronto, recites a laundry list of problems with the retention schemes he's tried. For example, formal retention programs tend to bring responses from competing organizations, and a bidding war is often the result, he says. Similarly, showing preference to year 2000 staff or others with specific in-demand skills creates waves of resentment that can undermine the retention program for the rest of the IS staff.

COMMITMENT

"As we built the metrics to establish a [retention] baseline, we discovered that the most important item was to be an employer of choice," Burns says. That involves applying all the tools of the trade — compensation, training, special awards — and more, he says. But all the efforts should be bound by a visible commitment to the team and the individuals who are part of it.

"Why do all these fancy things to force people to stay? Why not just be a great employer and make people want to stay?" asks Robert Helms, director of human resources. The answer, it seems, lies in using the "fancy things" in a down-to-earth, one-to-one fashion that encourages mutual trust and commitment between employer and employee.

Computerworld's Annual Job Satisfaction Surveys bear out that point. IS professionals routinely say they are underappreciated, overworked and overstressed. Based on that, they want more money and benefits, or they'll find more appreciation, better pay and less stress elsewhere.

Steve Ossandon, president of Interworks Systems, Inc. in Melville, N.Y., cites two decades of corporate downsizing across the country as the primary culprit in the IS retention battle, not just hot year 2000 and outsourcing competition. Employers are less loyal, and employees know it.

"I remember [what] my grandfather thought about his company back in the 1950s and '60s," Ossandon says. "He was a part of that company, with loyalty, and was not even considering going somewhere else." Try saying that about today's workforce.

KEEPING TALENT

Ossandon implies that changing workforce attitudes will take time — and personal effort. But when it comes to the nitty-gritty of hanging on to IS talent, you'll get your payoff. Ossandon says the key is to not only provide job security, but also to engender feelings of belonging, contribution and value.

"I make sure I do rounds each day when I'm in the office, and I encourage other managers to always do the same," he says. As a result, turnover in his operation is minimal, he says.

Jennifer B. Wilson, associate vice chancellor for human resources at University of Wisconsin at LaCrosse, agrees with that approach. Computer professionals will stick around if they feel they are part of a larger team and feel a sense of belonging, she says.

FLEXIBILITY

Even when that sense of belonging breaks down, decisive intervention by a manager can bring it back. "We beg a lot," laughs William Woodside, director of technology at Giant Food in Landover, Md. And it pays off. "We have actually talked to a number of people that had already given their notices, and by talking with them and finding ways to address their concerns and be more flexible, we were able to retain them," he says.

"Loyalty is a two-way street," says Mark Cook, director of computer services at the Columbus School of Law in Washington. Cook says managers should never take their staff for granted. "Make sure the staff knows you are their champion," he says. □

RETENTION FLIP-FLOPS

Despite widespread fear of losing staff, managers are using retention techniques that don't match what their staffers want

FEAR OF RAIDING:

57% of IS managers fear having their staff lured away by recruiters or placement agencies

TOP REASONS CITED BY MANAGERS FOR IS TURNOVERS:

70% Compensation
64% Opportunities for advancement
38% Corporate culture/environment
35% Future direction of the company
31% Access to technology
27% Training opportunities
17% Job security

STEPS MANAGERS ARE TAKING TO RETAIN IS STAFF:

39% Better training
17% Salary increases/reviews
17% New or improved compensation offerings
10% Nothing. No steps are being taken
9% Access to new technologies
9% Incentive programs
8% Career planning/broadening of positions

(SOURCE: *Computerworld*'s 1998 JOBS HIRING FORECAST)

WHAT IS EMPLOYEES SAY WILL INCREASE THEIR JOB SATISFACTION:

57% Higher salaries
43% Performance bonuses
40% Use of new technologies
37% Opportunities to contribute to business goals
36% Opportunities for advancement
36% Availability of IS training
34% Clearly defined decision-making authority

(SOURCE: *Computerworld*'s 1997 ANNUAL JOB SATISFACTION SURVEY)

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- Assist the computer infrastructure group with monitoring and assessing new software
- Recommend cost-effective techniques for compatibility and operation of software

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- Technical degree and 5-10 years experience
- Ability to plan and lead the installation and integration of software in a LAN environment and write technical and functional specifications
- Experience with:
  - —developing and deploying software for the PC platform, in C or C++
  - —Microsoft GroupWare products from a technical perspective, especially Microsoft Outlook
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Applications Support Manager

You'll coordinate vendors, internal users and IS staff to support reinsurance applications and serve as the primary technical contact for acquired software/services planning. You'll coordinate and implement upgrades and ensure compatibility with existing infrastructure. You'll also:

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- Travel on a limited basis

Qualifications

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- Experience in one or more of the following areas: Auditing/Accounting, Underwriting, Actuarial and with reinsurance software systems

Data Base Administrator

You'll install, maintain and configure relational data base systems. You'll assist in the acquisition of data required in the reinsurance business, prepare and load data into systems using scripts, C language applications, SQL and others and develop applications in Microsoft Access, PowerBuilder and other GUI/SQL based tools. And you'll be part of the team in the design and implementation of data models using ERWin and others

Qualifications

- BA/BS, 2-5 years experience as an administrator of a relational data base
- 2-5 years experience with Power Builder or similar tools
- Familiarity with ERWin or other data model tools
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SYSTEMS MANAGER (Miami, Fl) Broad exp flower industry, especially tasks related to design/implementation special formats used in mkt. Should have thorough knowledge of physical conditions for each type of flower, especially those related to minimum temperature, flower opening, bunch & stem count in box packing, etc. to establish detail procedures in receiving & maintaining in best possible way all products in whse. Should be familiar w/ terminology & basis of flower ind. req. to design reports to be used at all ind. levels, inc. projections, budget, quality claims & discrepancies w/customers & flower growers. Should identify/catalog all products to be sold & define sales price based on variety, product characteristics, packing, average life & market trends. Will train users & prepare systems & user manuals needed along whole process. Exp. in designing multi-user systems & implement on-line solutions for sales & administrative functions in flower industry. Resp. to plan systems to solve long/short term problems standard in the flower ind., such as anti-dumping, packing & fuel surcharges, importing flowers, etc. Negotiate contracts & purchases of computers, peripherals, software, changes & upgrades of the systems. Coordinate bst terms & company related computer data & comm., inc. ordering & shipping. Supervise, administrate, maintain local area networks, inc. file server & workstations. Interact w/query languages to access databases & export all necessary data. M-F, 40hrs, 8AM-5PM, $45,000 p/yr & yrs exp. Send resume to: Dept. Labor/Bureau Operations, 1320 Executive Ctr Dr #110, Tallahassee, FL 32399-0667 Job FL1721618.

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Growing HMO has immediate opening for a programmer/analyst with 3+ years experience with PICK Basic/PROC/Recall. At least 1+ year experience within a managed care, health care or insurance company. B.S. degree required. You must be well organized and capable of working on multiple projects simultaneously with ability to communicate with users @ all levels. We offer competitive salary, fully-paid health benefits including pension plan; employee parking. For consideration, please send your resume to: Professional Recruiter, Elderplan, Inc., 6323 Seventh Avenue, Brooklyn, NY 11220, fax: (718) 630-2584. EOE M/F/D/V

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Programmer/Analyst (Will travel between Boca Raton & Miami, FL area client sites). Analyze, design, develop, code, implement, test and maintain programs for commercial and financial applications systems using RPG/400 and SYNON/2E in an IBM mid-range environment. Bachelor's Degree in Comp. Sci., Engin., or Math. + 2 yrs. exp. in job. $37,500/yr; 40 hrs/wk; 8:30 a.m. - 5 p.m. Submit resume to: FDLES Bureau of Operations, 1320 Executive Center Dr., Ste. 110, Tallahassee, FL 32399-0667, Re: Job Order Number FL-1734788.

Applications Development Manager (Miami, SE Florida, USA) Planning & development of Oracle information systems databases and tools. Providing Oracle technology guidance, design of data warehouse & implementation of analytical processing tools. Master's in Comp. Sci., Information Science or related discipline & 2 yrs. exp. in job. Please send resume to: Pat Gordon, Electronic Computer Services, Inc., 2875 NE 191 St., Ste. #904, Aventura, FL 33180

BAY SEARCH GROUP

System Administrator - Needed for environmental consulting and testing firm. Will design, install, maintain, and support local area network and wide area network, install and support Timberline accounting and estimating systems, company-wide telecommunication system (email, internet, and phone), install, support, and maintain computer and laboratory computer hardware and software. Keeps current on information technology and software; will install and support Ethernet and Token Ring networks using BNC and 10baseT Topologies. Novell NetWare 3.12, Microsoft Network using Windows 95 and Windows NT workstation and server in IBM compatible environment. B.S., Computer Science; one year experience including Ethernet network installation, installing and troubleshooting hardware, installing and troubleshooting software on PC's, Microsoft and Novell networks. $34-38,000/yr., depending on qualifications and experience. 8:00 AM to 5PM. 40 hrs/wk. Apply Arkansas Employment Security Department, Russellville, AR 104 South Rochester Avenue or send resume to P.O. Box 2981, Little Rock, AR 72203. Job order #941740, attention David Hayes.

COMPUTERWORLD careers 1998 DIRECTORY OF CONSULTING EMPLOYERS AND THEIR WEB SITES!

Issue Date:
March 30, 1998

Deadline:
February 23, 1998

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Installing, maintaining, testing, and performing problem determination of all software systems assigned to him/her, as well as educating and supporting the entire Information Systems Staff on the use of various systems software. May be required to perform IMS DB/DC system programming. Position #98-3-C.

Background:

A college degree in computer science, mathematics, or an appropriate field, or equivalent work experience. Will also have three years' experience in systems programming in an MVS/ESA environment. For questions regarding this position, e-mail shoe@bcbsmt.com. **This position closes February 20, 1998.**

SOFTWARE ENGINEER

Responsibilities:

This position is responsible for the design, development, and implementation of new and current application systems and associated processes/tasks. Will also be responsible for ensuring that business and client requirements/needs are efficiently and effectively met within identified time frames. The position requires maintaining and increasing technical skills and knowledge to ensure that the most desirable solutions are used and implemented. Position # 98-1-C.

Background:

The successful candidate will have a college degree in computer science or related field; or an equivalent combination of education and experience. Will also have experience with JCL and COBOL in an IBM MVS/ESA environment. **This position closes February 20th, 1998.**

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For these positions only, please e-mail your resume and salary requirements, as an RTF attachment, to Human_Resources@bcbsmt.com. Include the position number you are applying for in the subject section of your e-mail. Applicants may also send this information to: Blue Cross Blue Shield of Montana, Attn: HR, P.O. Box 4309, Helena, MT 59604. Application material cannot be considered if it does not make reference to a specific open position.

EOE M/F

The Information Technology Group of NOVUS Services, Inc., a division of Dean Witter, Discover & Co., currently seeks IT Professionals with expertise in the following areas:

VRU PROGRAMMERS/TELECOM ANALYSTS

The Voice & Data Team are currently looking for individuals with 2 or more years experience with the following skills: CTI, ACD, Call Routing, VRU, Voice Network Traffic Engineering, and Outbound Dialer. ***Job Code MH-V/D***

SOFTWARE PROGRAMMERS

Opportunities exist within the Infrastructure Applications Team for entry-level and experienced (3-5 years) candidates to be responsible for development and support of hardware, systems software, and the communication layer of our network. Experience with programming in C, C++, & JAVA a plus. Ability to coordinate technical and business support issues, with a background in multi-platform environments with a focus on UNIX. Excellent interpersonal and communication skills are essential. ***Job Code MH-S/P***

ANALYSTS/DEVELOPERS

Several challenging openings are available within the strategic IT development group of NOVUS Network Services for experienced programmers & systems analysts with broad technology backgrounds. The department provides POS network and merchant support systems for NOVUS brand cards and as one of the self-motivated, team-oriented professionals we seek, you should possess a bachelor's degree in Computer Science (or related experience) and 3-5 years of experience in one or more of the following: C++, Windows 95/NT, Java, DB/2 & ORACLE (Programmers & Business Analysts), OS/2 PM, Data Warehousing, Sales Automation Development. ***Job Code MH-N/S***

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EOE M/F/D/V

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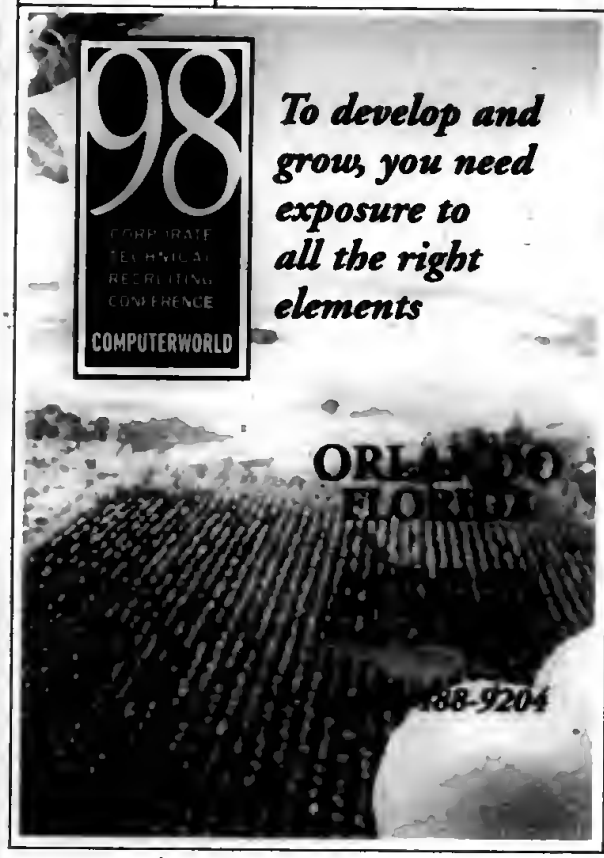

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Programmer/Analyst (Multiple Positions, Madison, WI) Design, develop & implement financial & administrative applications computer systems in COBOL/DB2/CICS/IMS. 2 yrs exp in job offered. $45,000/yr. 40 hrs/wk, 9-5, M-F. Applicants send 2 copies of resume to: Mike Brooks, DWE-ALC, P.O. Box 7972, Madison, WI 53707-7972. Refer to Case Number C100092

COMPUTER CONSULTANT Employer has an immediate opening for a Computer Consultant. Duties require the Computer Consultant to consult with clients, which consist of heavy duty truck dealerships and heavy duty truck aftermarket companies, to determine the technical and business goals of software applications. Consult with prospective clients to determine best software solutions. Manage installations of solutions. Assist in design of applications. Position requires, at minimum, an Associate's Degree in Computer Science or Business or other pertinent field; and two year's experience as a Computer Consultant, or Programmer Analyst, or Systems Analyst, or Systems Support professional, or Account Manager. Applicants must have proof of legal authority to work permanently in the U.S. in the United States. 40 hours per week, Monday through Friday, 8:00 a.m. to 5:00 p.m. $55,000 per year. Central Illinois location. Interested persons should submit resume and work-related references to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY 401 South State Street - 7 North, Chicago, Illinois 60605 Attn: Brenda Kelly, Reference # V-IL 15401-K. AN EMPLOYER PAID AD. NO CALLS. SEND 2 COPIES OF BOTH RESUME & COVER LETTER. All resumes will be noted and forwarded to the employer for consideration.

IT CAREERS MIDWEST

Computer Analyst II location, Columbia, SC. Analyze and determine client's data communications problems and networking needs, and plan, test, recommend, and troubleshoot customized IBM-compatible hardware and software solutions, including client-server software, personal computers, Internet, web sites, home pages, local area and wide area networks. Establish Internet Service Provider (ISP) for incoming calls, mail, news, web hosting, chats, videoconferencing, and Domain Name System by installing and configuring Ascend MAX 4004 communication terminal server or receive communication lines and protocols. Accept Transport Control Protocol/Internet Protocol, Point to Point Protocol, and Compression Control Protocol Internet user communication protocols and T1 and Integrated Switched Digital Networks communication lines. Assign dynamic Internet Protocol addresses or users. Establish communication routes to requested destination. Install and configure Cisco 2501 Internet Gateway Routing Protocol device to communicate with MCI Peer Router and with the terminal accepting incoming calls by establishing static and dynamic communication routes of protocols or Internet destinations. Install and configure Microsoft NT, SunOs Unix, and Novell Netware network operating systems to run ISP services named above. Install and configure Livingston Radius and Ascend Radius Authentication and Accounting Servers for full control of Internet-user access to communicate with terminal servers, monitor user access to Internet, and keep database of customers to authenticate users and perform accounting for billing purposes. Design and implement Microsoft NT, Novell Netware server-client based network according to user resources and physical location needs by installing and configuring Microsoft Office '97, Novell Perfect Office, and "off the shelf" database packages to run on server as a shared program between clients using Windows 95 and NT Station. Design and build IBM-compatible hardware and install IBM software customized to meet client needs. Manage computer engineer and technicians who build computer systems. Oversee and assist with installation and integration of new and existing IBM compatible computer systems. Service IBM hardware and software. Plan and coordinate training sessions and provide training for clients in use of new-to-market Windows 3.1 for English and Arabic and Windows 95 for English and Arabic for use of personal and network computers, Internet, and web sites. Monitor system performance. Plan, develop, test, and document computer programs designed for business and technical applications and customer for client specifications using IBM compatible programs or Windows environment. Requires B.S. Computer Science or Computer Engineering and 1 yr exp or Programmer Analyst. Salary $40,000/yr overtime exempt. 10am-6pm, 40 hrs/wk, M-F. Submit 2 copies of resume or Regina Ratliff, E&T Tech Services, SCESC SC7000701, PO Box 1406, Columbia, SC 29202

Senior Programmer: Provide systems integration solutions using structured systems Analysis methods; provide services in terms of systems development life cycle activities such as analysis of requirements, design, programming, Unit and System testing, implementation, documentation, training on mostly large scale state/federal government applications in welfare, child support enforcement and other associated areas using Main Frame technology. Extensive use of tools and programming languages on the Main Frame, UNIX machines and PCs. Must have minimum one year experience in the Area of Automated Child Support systems, development, design and programming experience on IBM Support Enforcement System, development, design and programming on IBM Mainframes using IMS DB/DC, COBOL, VSAM, JCL, TSO/ISPF, DB2, CICS, IMS-XPERT, FILE-AID and XPEDITER. Master's degree in Engineering/Math/Computer Science and one year experience either in the job offered or as a Software Engineer or Systems Analyst required. 8:00 AM to 5:00 PM, 5 days/40 Hrs. wk. Salary $66,000 yr. Resumes must include your Social Security number. Mail resumes to Job Service, 700 Wade Avenue, P.O. Box 27227, Raleigh, NC 27611. Refer to Job Order # NC7276807 and DOT code 030.162-014.

computer technology

CHIEF OPERATING OFFICER

Goldleaf Technologies, Inc., an Equifax Company, is conducting a national search for an experienced Chief Operating Officer to oversee operations in our south Georgia and new north Atlanta facilities. Goldleaf, currently located in southern Georgia, is a high growth premier developer of client/server based electronic banking software. The company specializes in banking applications including Cash Management, Home Banking, and Automated Payment processing solutions. Qualified candidates must have had the experience of organizing and successfully managing a computer software company. The candidate selected must be and organized, possess excellent managerial talents, have maintained astute technical computer skills, and able to demonstrate a high degree of motivation for accomplishment.

As an Equifax Company, Goldleaf Technologies offers an outstanding executive level salary/benefits package and career advancement opportunity in a multi-billion dollar organization. Qualified candidates should send their resume today to: **Goldleaf Technologies, Inc. P.O. Box 808100, West Main Street, Nahia, Georgia 31632 or FAX to: 912-794-3000; or Email to: garyp@pcdocs.com**

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MIS DIRECTOR

We seek an individual with previous Management experience in MIS to design, develop and maintain systems and programs for administration and scholastic office in educational institution. Must have minimum 10 years experience working in an educational environment designing systems for higher education administrative offices.

Please send resume to:
Dr. Robert Ross
ROSS UNIVERSITY
460 West 34th Street
New York, New York 10001
Fax 212-629-3147 or 212-629-7767

Programmer/Analyst (Wakefield, MA). Programming & testing of financial applications computer systems in client-server environments. Perform C & C++ programming using Visual Basic & Powerbuilder, incorporating object oriented analysis. Bachelor's in Comp. Sci., Math, M.I.S., Eng. or Engineering related disciplines. 2 yrs. exp. in job offered or 2 yrs. exp. as engineer performing C++, Visual Basic & Powerbuilder object oriented analysis. $45,000/yr., M-F, 40 hrs./wk., 9-5. Applicants respond to: Case #71594, PO Box 8968, Boston, MA 02114.

Systems Analyst needed for computer software development and consulting firm located in Duluth, Georgia. Job duties include Analyze, design, develop, implement and test computer applications. Software consulting on various in-house projects and/or contract basis throughout the United States. Re-engineer software applications using state-of-the-art tools and techniques. Use COBOL II, MVS/JCL, DB2, IMS DS/DC and VSAM databases, VS/CICS, INTERTEST, XPEDITOR, Job-Scheduler, FILE-AID and EASYTRIEVE on IBM mainframe machine in MVS/XA/ESA environment. Applicant must have B.S. degree in Engineering or Computer Science. Applicant must also have 2 yrs. exp. in the job duties described above or as a Systems Analyst Programmer Analyst or Software Consultant which includes 2 yrs. analyzing and designing computer applications using COBOL II, DB2, CICS, VSAM IMS DB/DC on an IBM mainframe. 40hrs/wk, 8.00 am - 5:00 pm, Mon-Fri, $50,000/yr. Report to or send 2 resumes to Georgia Department of Labor, Job Order #GA6185020, 1535 Atkinson Rd., Lawrenceville, GA 30243-5601 or the nearest Department of Labor Field Service Office.

Senior Systems Officer: To exercise broad discretionary powers in class definitions. To work with the overall systems architecture, choice of software products and third party tools for use in all developing applications software on both client and server platforms, including researching the marketplace for possible third party vendor alternatives before a decision is made internally to develop functionality. To be involved in architectural decision making responsibilities, including definition of internally developed core functional components reused by the entire application development team and cross component interactions critical to an extensible design. Must have a Bachelor's degree or equivalent in Computer Science, Engineering or related field with 5 years' experience including strong client software development skills, experience with C, C++, running on Windows 3.1, MS-DOS, relational databases applications programming, SQL. Experience with UNIX in distributed applications programming utilizing TCP/IP and related tools (DBLIB) 40 hrs/wk, Mon-Fri 9am-5pm $62,577-$90,000 (plus bonus) Send 2 resumes to: Case #71613, P.O. Box 8968, Boston, MA 02114

SOFTWARE ENGINEER: Experience in object oriented design and development. Proven ability in client/server technology. Demonstrated ability in automating on line systems like traffic systems, manufacturing systems, etc. Proven skills to work with Power Builder, RDBMS, C++, Visual Basic, X windows, MS Windows, UNIX, CASE tools, etc. The job duties are: Analysis of current procedures and problems to refine and convert the data to programmable form, determine output requirements, study existing system to evaluate effectiveness; upgrade systems presently in use; develop, test and implement new software, observe functioning of newly implemented systems and programs for trouble areas; correct systems/programs as necessary. Requires Bachelors in Computer science with two years experience in software development. 40 hours per week at $60,000/- per year. Please send resume to Case #71658, PO Box # 8968, Boston, MA 02114.

Technical Support Manager BSEE/BSCE/Physics/related fields. Manage activities of tech. research and tech. support; coordinate tech. liaison services with new techniques or practices in processing product; inform customers of new types, spec. and end-uses of products; confer w/production manager to assist in specific classification of products; report on new product or process technology of competitors, discuss new spec., direct investigation of customer complaints; negotiate settlement of claims. Knowledge of semi-conductor is a plus. Competitive salary. Hrs. 40/wk. Call Mr. Wang at 770-622-7712. RAD USA Corp., 3290 Satellite Blvd, Ste 200, Duluth, GA 30096.

Computer Programmer/Analyst

New York state labor union seeking applicants. Downtown Albany office. Duties include both computer programming and analytical work in applying EDP methods to solve business problems and address business initiatives. COBOL programming is a requisite. IBM background helpful. Individuals with Ross Financials or Cyborg Human Resource system backgrounds are encouraged to apply. Minimum qualifications: Associates degree in data processing/computer science plus 2 years progressive programming and minimum 6 months systems analysis work, or 4 years progressive programming with minimum 6 months systems analysis work. Resume and salary requirements to **Director of Human Resources, P.O. Box 7125, Capitol Station, Albany, NY 12224. www.cseainc.org** Submit by Feb. 6. Equal Opportunity Employer.

Data Recovery Planner, Atlanta GA. Responsible for direct systems work to recover business data processing operations & communications lost by natural disaster/contamination. Select comparative sys. to replace damaged sys. Provide technical support for data recovery. Provide operational assist, diagnostic reports, & cost analysis. Req. MS in Comp. Sci. or Comp. Engineering. 1 yr. exp. as Data Recovery Planner or as systems/software/computer support or engineering. Exp to include installation & configuration of network operating sys. (May substitute BS in req. field of study & addit'l 2 yr exp. for MS degree.) $38K/yr. Resumes to: Coastal Technical Services, Box 100, 3886 Oakcliff Industrial Court, Doraville, GA 30340.

Software Engineer - Heathrow, FL - Analyze req, design, develop, test, implement & maintain, client/server architecture. Design GUI & Object Oriented Methodology using SYBASE, SQL Windows & C language on UNIX based hardware. M-F, 8AM-5PM, 40 hrs/wk, $50,000/yr. Req 2 yrs exp in job. Submit resume to: FDLES Bureau of Operations, 1320 Executive Center Dr., Ste 110, Tallahassee, FL 32399-0667, JO# FL-1732532

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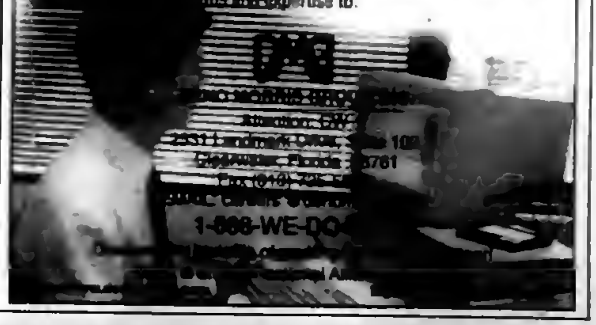

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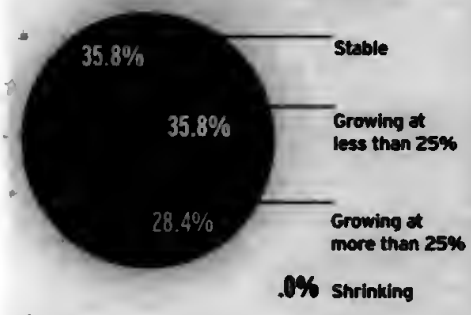

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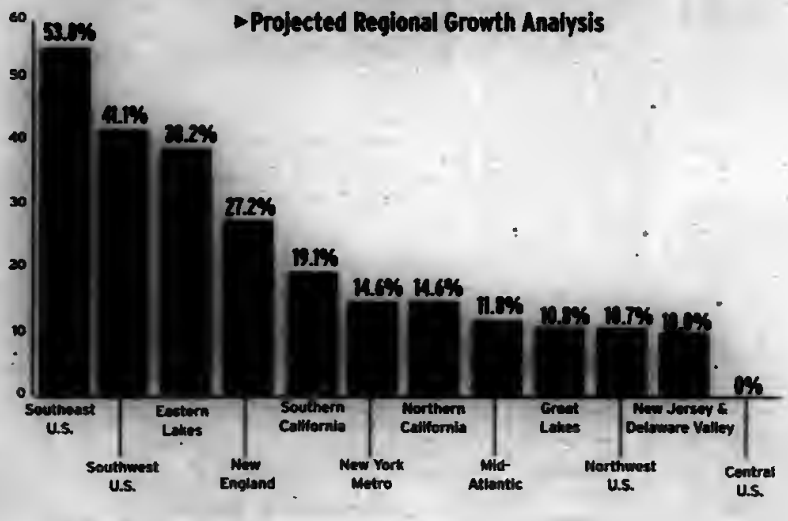

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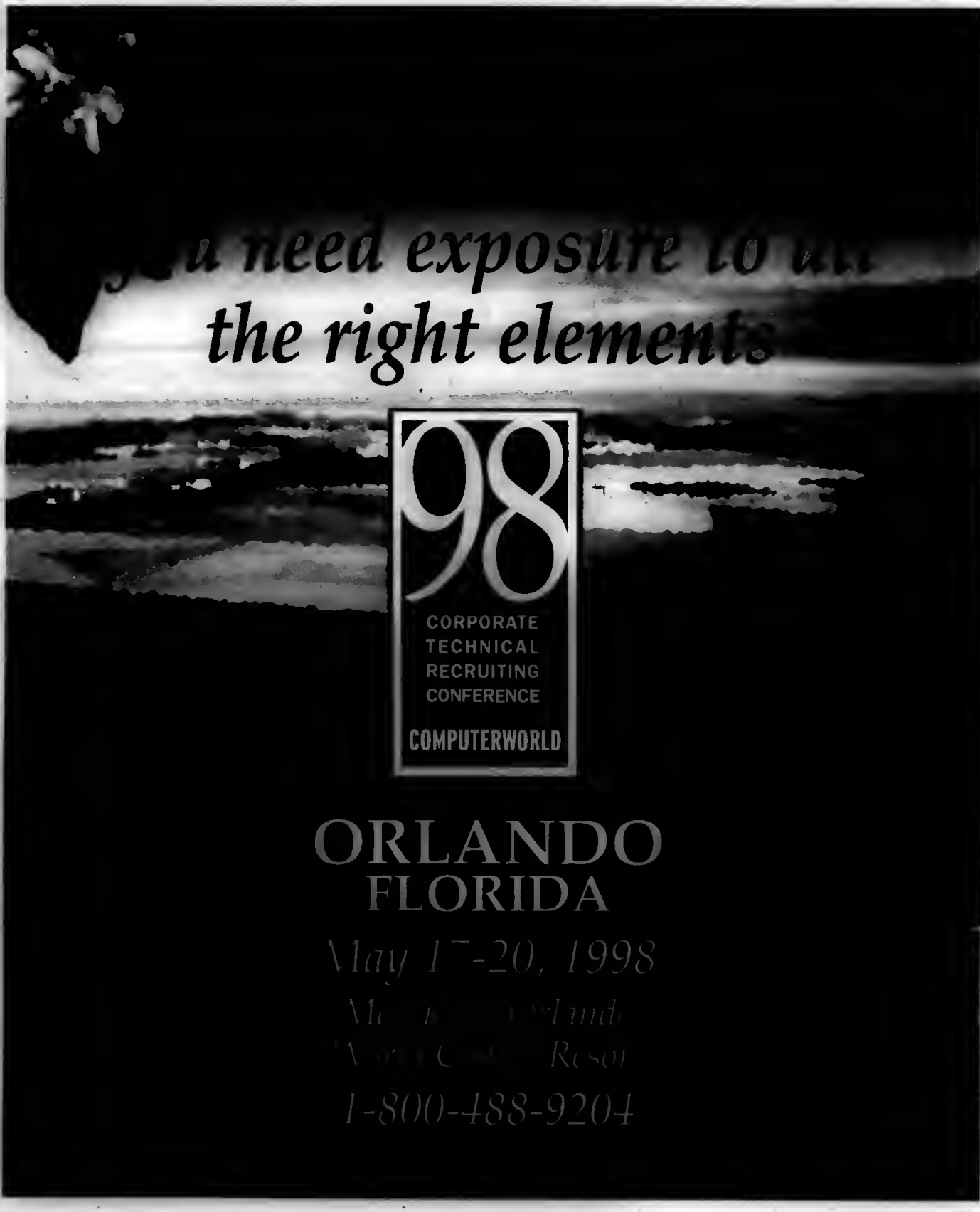

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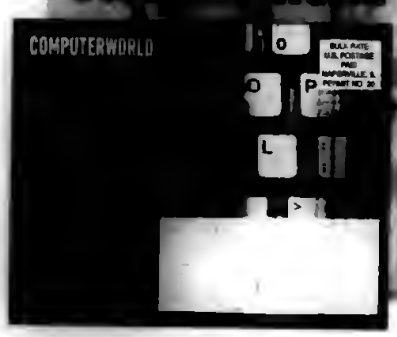

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STOCK TICKER

The Week in Stocks

Gainers

PERCENT	
IPL Systems Inc.(L)	53.8
Business Objects(L)	33.3
Racotek Inc.	32.4
Netscape Comm.Corp.(L)	29.3
VMark Software Inc.(H)	23.6
SCB Computer Tech. Inc.(L)	19.7
Centura Software(L)	18.8
Intelligent Electronics	18.8

DOLLAR	
Microsoft Corp.(H)	8.69
Dell Computer Corp.(H)	8.63
Computer Horizons(H)	7.34
BGS Systems Inc.(H)	6.88
Lucent Tech.(H)	6.25
Intel Corp.(L)	6.19
Xerox Corp.	6.13
Comdisco Inc.(H)	5.94

Losers

PERCENT	
Systemsoft Corp.(L)	-37.5
Newbridge Networks Corp.(L)	-21.7
Radiant Systems Inc	-21.2
National Semiconductor	-20.4
Meridian Data Inc.(L)	-13.4
Data Race Inc.(L)	-12.8
Madge Networks NV	-9.8
MathSoft(L)	-9.4

DOLLAR	
Newbridge Networks Corp.(L)	-5.69
National Semiconductor	-5.69
Radiant Systems Inc	-6.25
BellSouth Corp.(L)	-2.19
Systemsoft Corp.(L)	-2.06
AMERITECH Corp.(L)	-1.38
Advanced Micro Devices(L)	-1.38
Boole and Babbage(L)	-1.25

INDUSTRY ALMANAC

Megadeal causes mini-ripple

The Compaq/Digital megamerger may have sent ripples through the computer industry, but several financial analysts say the deal will have no immediate effect on competitors IBM, Hewlett-Packard and Sun — at least as far as investors are concerned.

Analysts say other matters, such as fallout from the economic turmoil in the Asian market, would have more effect on the stocks of Compaq's and Digital's rivals.

"It's way too early to know," said David Wu, an analyst at ABN AMRO, Inc., based in San Francisco. "I'd say wait a couple of years, and then you'll really know [what the impact of the merger is]."

Houston-based Compaq Computer Corp. last month agreed to purchase Maynard, Mass.-based Digital Equipment Corp. for roughly $9.6 billion.

Wu's company has solid Buy recommendations for shares in Hewlett-Packard Co. (NYSE:HWP) and Sun Microsystems, Inc. (Nasdaq:SUNW). It also has a Buy rating for Compaq (NYSE:CPQ).

"A lot of [Compaq] people have already worked at [Digital], so they know where the bodies are buried. They're not going to be blindsided," Wu says.

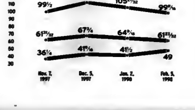
Michael Geran, vice president of research at Pershing Investment Research, a division of DLJ Securities Corp. in Jersey City, N.J., says most IBM investors aren't concerned about the merger. Pershing lists IBM (NYSE:IBM) in the value category as a Buy.

Geran says the market already has factored in any threat from Compaq and Digital (NYSE:DEC), so there has been little reaction to the merger from the stock market.

— Gordon Mah Ung

RIVALS HOLD THE LINE

The Compaq/Digital deal hasn't scared away investors from rivals IBM, HP or Sun



Exch*	52 Week	Range	Company	Feb 6 2pm	Wk Net Change	Wk Pct Change
Communications and Network Services						**UP [illegible]**
COMS	59.68	4.20	3COM Corp	32.50	0.13	0.4
AIT	41.58	27.62	AMERITECH Corp (L)	41.56	-1.38	-3.2
ASND	97.87	23.20	Ascend Communications Inc	33.41	4.15	14.1
T	66.50	30.73	AT&T	64.20	0.75	1.1
BNYN	4.87	1.18	Banyan Systems Inc (L)	3.50	0.31	8.3
BAY	41.87	15.37	Bay Networks Inc (L)	30.69	3.38	12.4
BEL	83.81	56.75	Bell Atlantic Corp (H)	81.81	1.13	1.2
BLS	62.50	38.97	BellSouth Corp (L)	58.44	-2.19	-3.8
BRKT	26.35	9.25	Brooktrout Technology	19.00	1.88	11.0
CS	46.50	12.62	Cabletron Systems (L)	11.87	1.50	10.5
CCRM	21.87	8.56	Centigram Communications (L)	12.56	0.44	3.8
CSCO	40.18	38.18	Cisco Systems Inc (H)	64.63	1.00	1.7
CMNT	8.59	3.11	Computer Network Tech (L)	4.88	0.11	3.1
CNCX	16.00	7.83	Concentric Network Corp	11.25	0.63	5.9
DIGI	32.75	17.20	DSP Communications	19.81	0.81	3.9
FORE	35.75	10.20	FORE Systems Inc	10.69	1.94	13.1
GDC	10.00	3.25	General DataComm Inds	3.75	-0.19	5.2
GSX	33.20	18.12	General Signal Networks (L)	34.75	0.23	0.8
GTE	53.75	40.18	GTE Corp	54.00	-0.14	0.1
LU	96.57	48.67	Lucent Tech (H)	94.69	6.25	7.1
MADGF	14.12	3.25	Madge Networks NV	4.63	-0.50	-9.8
MCIC	47.75	27.81	MCI Communications Corp (H)	45.25	0.09	1.3
NETM	5.25	2.09	NetManage Inc (L)	3.81	0.25	8.2
NTRX	3.38	0.62	Netrix Corp (L)	1.59	0.00	5.8
NCDI	15.50	5.87	Network Computing Devices (L)	9.50	0.00	0.0
NWK	22.87	13.23	Network Equipment Tech	13.50	-0.03	0.2
NN	69.51	18.83	Newbridge Networks Corp (L)	20.56	-5.69	-21.7
NT	58.91	31.00	Northern Telecom Ltd (L)	46.56	1.81	4.1
NOVL	13.20	8.28	Novell Inc (L)	3.53	0.50	3.1
ODSI	18.25	5.18	Optical Data Systems Inc (L)	3.20	0.25	3.4
PCTL	20.31	3.62	PictureTel Corp (L)	7.50	0.63	9.1
PTON	8.50	1.03	Proteon Inc (L)	1.10	0.20	2.6
RACO	4.50	1.00	Racotek Inc	2.81	0.69	32.4
RADS	29.37	7.00	Radiant Systems Inc	18.50	-6.25	-21.2
RETX	1.02	3.17	Retix (L)	4.75	0.31	2.0
SBC	70.20	49.25	SBC Communications	77.89	0.61	-0.8
SFA	24.93	14.20	Scientific Atlanta Inc	11.69	0.20	0.8
SHVA	18.25	8.00	Shiva Corp (L)	11.00	1.58	15.8
FON	62.57	41.25	Sprint Corp (H)	58.25	1.10	3.0
QWST	74.00	20.37	QWest Communications Intl Inc	72.50	1.62	3.3
SMSC	18.12	8.20	Standard Microsystems Corp	8.43	1.15	13.2
USW	58.81	31.11	U S West Inc (L)	48.19	0.31	0.8
XIRC	29.62	7.50	Xircom	11.58	1.11	10.5
XYLN	24.62	12.33	Xylan Corp (L)	19.25	0.94	5.1
PCs and Workstations						**UP [illegible]**
AAPL	29.56	12.71	Apple Computer Inc	18.59	-0.22	[illegible]
CPQ	34.75	14.25	Compaq Computer Corp	33.31	5.29	15.3
DELL	108.81	50.00	Dell Computer Corp (H)	107.81	8.63	8.7
GTW	48.25	18.17	Gateway 2000 Inc (L)	40.18	2.69	7.1
HWP	72.93	20.13	Hewlett-Packard Co (L)	62.96	2.13	3.5
MUEI	33.17	8.43	Micron Electronics Inc (L)	19.25	1.00	14.8
NIPNY	74.20	48.62	NEC America (L)	59.75	1.69	2.8
SGI	36.11	10.91	Silicon Graphics (L)	14.81	2.00	-4.4
SUNW	53.81	29.87	Sun Microsystems Inc (L)	43.10	0.56	1.2
Large Systems						**UP [illegible]**
DGN	39.93	13.34	Data General Corp (L)	16.00	1.31	8.0
DEC	82.62	23.20	Digital Equipment Corp (H)	60.75	4.06	5.3
IBM	113.50	81.43	IBM (L)	98.50	-0.81	0.8
MDCD	3.12	2.81	Meridian Data Inc (L)	3.48	-0.53	-13.4
NCR	43.51	25.62	NCR Corp	29.50	0.50	1.8
PRCM	20.12	7.00	ProCom Technology Inc (L)	8.20	1.20	11.9
SQNT	31.25	14.50	Sequent Computer Sys	20.15	2.31	15.0
TXM	8.00	3.13	Texas Micro Inc	5.73	0.19	4.8
SRA	20.75	30.53	Stratus Computer Inc	44.09	2.25	5.5
UIS	18.20	5.93	Unisys Corp (H)	17.94	1.44	8.5
Software						**UP [illegible]**
ADBE	53.13	12.50	Adobe Systems Inc	40.15	2.20	1.6
AMSWA	15.62	5.39	American Software Inc (L)	9.75	0.25	2.6
APLX	16.75	9.12	Applix Inc (L)	8.22	0.20	1.5
ARSW	53.25	17.20	Arbor Software	42.06	4.81	13.3
ADSK	51.12	30.25	Autodesk Inc	43.25	4.20	12.1
ARSC	52.50	17.75	Aris Corp	25.50	1.11	4.7
BAANF	62.25	20.20	The Baan Co	42.21	5.56	15.2
BGSS	45.50	27.50	BGS Systems Inc (H)	41.28	6.88	18.8
BMCS	71.81	19.82	BMC Software Inc (H)	71.69	4.25	8.5
BOOL	55.25	18.82	Boole and Babbage (L)	31.00	-1.25	-3.9
BORL	12.18	5.83	Borland Intl Inc (L)	8.81	1.13	14.6
BOBJY	15.00	6.62	Business Objects (L)	11.20	3.25	33.3
CAYN	5.75	0.93	Cayenne Software Inc (L)	1.56	0.00	1.8
CNTRC	3.12	0.87	Centura Software (L)	1.18	0.19	18.8
CHKPF	20.50	10.25	Checkpoint Software	35.25	4.25	11.5
COGNF	35.00	11.62	Cognos Inc (L)	24.88	3.75	17.8
CA	57.66	24.81	Computer Associates (H)	56.19	2.56	4.8
CPWR	43.00	14.62	Compuware Corp (H)	41.75	2.18	8.8
CSRE	15.87	4.25	Comshare Inc	8.18	-0.18	2.1
COSFF	7.12	1.00	Corel Corp	3.44	0.00	3.6
DWTI	8.12	2.13	Dataware Technologies Inc (L)	3.18	-0.13	3.8
FILE	15.50	9.50	FileNet Corp	13.00	1.50	4.8
FRTE	18.62	4.93	Forte Software (L)	5.18	0.25	4.8
FTPS	8.31	1.50	FTP Software Inc	1.89	0.00	3.2
GPSI	15.90	20.37	Great Plains Software Inc	30.20	0.83	2.1
HUMCF	54.25	22.00	Hummingbird Comm Ltd	31.38	0.75	2.4
HYSW	46.20	11.00	Hyperion Software Corp	41.63	1.23	3.1
IRIC	20.20	11.75	Information Resources	14.00	0.18	1.4
IFMX	21.58	4.20	Informix Corp	5.54	0.20	1.8
INGR	14.98	8.21	Intergraph Corp	8.88	0.28	3.1
ILAF	4.20	0.81	Interleaf Inc (L)	3.50	0.19	5.8
ISLI	21.25	6.25	Intersolv Inc	18.18	1.38	7.8
INTU	48.20	20.85	Intuit Inc (H)	42.75	1.20	13.2
JDEC	40.62	24.07	J D Edwards Co	32.20	1.01	4.1
TLC	58.50	5.50	Learning Co (The)	15.44	0.00	0.0
LGWX	12.83	4.12	Logic Works Inc (L)	10.20	0.94	10.3
MAPS	14.23	7.87	Mapinfo Corp (L)	11.63	0.25	3.2
MATH	5.12	3.18	MathSoft (L)	2.72	-0.28	-9.4
MENT	13.12	8.50	Mentor Graphics	4.20	0.00	0.8
MIFGY	51.75	16.37	Micro Focus (H)	51.50	5.38	11.7
MCRO	10.75	4.20	Micrografx Inc	10.50	1.20	11.4
MSFT	158.75	87.50	Microsoft Corp (H)	152.88	8.69	5.8
OBJS	2.00	0.41	ObjectShare Inc (L)	1.20	0.20	0.1
ONTL	15.00	0.25	Ontrack Ltd	10.13	0.03	5.8
ORCL	42.13	17.75	Oracle Corp	25.96	2.00	8.8
PMTC	62.20	32.20	Parametric Technology	53.23	2.94	5.8
PSFT	40.00	15.51	PeopleSoft (H)	40.20	5.44	15.7
PTEC	18.75	11.00	Phoenix Technologies	12.31	0.31	2.6
PSQL	13.25	6.50	Platinum Software	11.38	0.18	1.7
PLAT	31.12	10.23	Platinum Technology (H)	28.75	1.15	4.1
PRGS	25.25	12.62	Progress Software Corp (L)	21.80	-0.28	1.7
RNBO	38.00	13.75	Rainbow Technologies Inc	24.50	0.25	1.0
REDB	24.25	5.20	Red Brick Systems Inc	7.00	0.18	3.3
ROSS	8.25	1.75	Ross Systems Inc	1.20	0.21	8.1
SAPE	80.20	50.00	Sapient Corp (H)	74.50	0.61	0.6
SCOC	7.62	3.13	SCO Inc (L)	4.13	0.20	3.3
SDTI	44.37	21.00	Security Dynamics Tech	34.00	0.69	2.0
SOTA	21.88	8.84	State of the Art (H)	21.81	0.18	0.1
SSW	41.20	27.33	Sterling Software (H)	39.75	1.31	1.4
SDRC	30.20	15.25	Structural Dynamics Research	23.25	1.25	1.1
SYBS	33.62	6.07	Sybase Inc (L)	9.44	0.94	11.0
SYMC	27.75	2.00	Symantec Corp	34.75	0.69	2.9
SNPS	47.12	21.75	Synopsys	50.41	1.66	11.9
SSAX	15.62	3.87	System Software Assoc (L)	3.20	-0.58	5.8
TSFW	18.00	1.44	Systemsoft Corp (L)	3.44	-2.06	-37.5
TRUV	5.98	1.50	Truevision Corp	2.20	0.03	1.4
VSIO	40.12	18.13	Visio Corp	40.38	3.03	8.1
VMRK	12.25	3.75	VMark Software Inc (H)	11.15	2.13	23.6
WALK	18.23	10.50	Walker Interactive Systems	13.20	-0.05	0.3
WALL	29.12	11.31	Wall Data Inc (L)	16.00	0.50	3.4
WANG	29.75	18.20	Wang Laboratories Inc (H)	25.13	1.50	6.3
Internet						**UP [illegible]**
AMZN	66.20	15.75	Amazon.com	59.00	-0.50	0.8
AOL	101.75	55.25	America Online (H)	98.00	3.85	2.4
ATHM	38.62	16.62	At Home Corp (L)	25.25	1.75	7.4
EDFY	33.13	8.07	Edify Corp (L)	13.20	-0.61	4.8
XCIT	49.75	7.50	Excite Inc (H)	46.73	4.20	9.4
SEEK	14.50	4.37	Infoseek Corp (L)	11.50	0.41	3.4
LCOS	43.62	11.18	Lycos Inc (H)	40.20	1.50	4.1
NSCP	40.50	14.81	Netscape Comm Corp (L)	21.23	4.81	29.3
NSOL	26.75	11.75	Network Solutions Inc	18.23	0.38	2.7
OMKT	11.31	8.50	Open Market Inc	11.94	1.44	11.1
PEGS	20.75	12.50	Pegasus Systems	18.30	1.13	1.1
PSIX	10.23	4.25	PSINet	7.81	-0.09	1.2
QDEK	4.81	1.18	Quarterdeck Corp (L)	3.10	-0.83	1.4
RAPT	18.50	8.87	Raptor Systems (L)	15.18	0.75	5.4
SCUR	14.81	6.75	Secure Computing Corp	9.31	-0.03	0.1
SPYG	12.62	4.06	Spyglass Inc (L)	5.50	-0.28	4.9
YHOO	71.00	14.20	Yahoo! Inc (L)	63.81	0.31	0.5
Semiconductors						**UP [illegible]**
AMD	48.50	2.00	Advanced Micro Devices (L)	18.44	-1.38	8.0
ADI	36.68	50.62	Analog Devices Inc (L)	20.85	0.20	2.3
CRUS	13.75	0.00	Cirrus Logic	10.50	0.11	1.2
CY	38.99	5.33	Cypress Semiconductor Corp (L)	10.00	0.12	1.5
INTC	102.20	62.87	Intel Corp (L)	87.50	6.19	7.8
LSCC	74.50	39.75	Lattice Semiconductor	51.25	5.25	11.3
LSI	46.87	18.62	LSI Logic Corp (L)	25.13	3.88	1.8
MCEL	46.85	11.00	Micrel Semiconductor Inc	36.00	-0.13	0.4
MU	60.08	22.00	Micron Technology	35.63	0.94	2.7
MOT	70.50	53.75	Motorola Inc	64.25	-0.13	0.9
NSM	42.07	21.50	National Semiconductor	22.14	-5.69	-20.4
RMBS	80.75	26.87	Rambus Inc	45.00	1.25	2.8
TXN	71.25	35.81	Texas Instruments	34.23	0.13	0.2
VLSI	58.08	14.87	VLSI Technology (L)	31.50	1.50	7.5
XLNX	58.50	28.50	Xilinx	40.13	2.10	5.8
ZILG	26.25	10.87	Zilog Inc (L)	19.31	0.10	1.0
Peripherals and Subsystems						**UP [illegible]**
ADPT	54.25	19.50	Adaptec Inc	32.81	0.50	6.0
APCC	44.11	15.25	American Power Conversion	21.28	1.20	7.2
CREAF	20.37	0.62	Creative Technology Ltd (L)	19.81	0.79	4.5
RACE	18.33	2.12	Data Race Inc (L)	2.62	-0.38	-12.8
DTM	12.50	3.87	Dataram Corp (L)	10.50	1.38	16.7
EMC	31.37	15.81	EMC Corp (H)	30.15	1.44	4.5
EMLX	21.25	10.20	Emulex Corp	13.20	1.19	10.1
ESCC	35.87	22.00	Evans and Sutherland	28.50	0.13	0.4
EXBT	18.50	3.62	Exabyte (L)	3.00	-0.06	4.8
IISLF	2.18	0.93	Intelligent Sys Systems (L)	1.09	0.20	6.4
IOM	18.75	7.20	Iomega Corp (L)	10.19	0.94	10.1
IPLS	2.81	0.83	IPL Systems Inc (L)	2.50	0.88	53.8
KMAG	35.37	11.75	Komag Inc	13.31	-0.30	2.3
MTSI	54.83	13.00	Micro Touch Systems Inc	15.94	3.69	4.1
MTIC	11.87	1.25	MTI Technology Corp	51.50	-0.25	2.4
PNCL	5.37	0.12	Pinnacle Micro Inc (L)	0.25	0.03	14.3
AQM	23.06	2.25	QMS Inc	3.44	0.19	3.5
QNTM	43.25	18.87	Quantum Corp	24.00	1.00	4.2
RDUS	0.81	0.18	Radius Inc (L)	0.34	0.01	10.0
SEG	56.25	17.75	Seagate Technology	21.38	0.81	5.5
SOS	19.62	5.20	Storage Computer Corp	5.88	0.06	0.8
STK	67.00	33.25	Storage Technology	62.20	2.81	4.4
TEK	40.43	32.16	Tektronix Inc (H)	44.63	3.20	6.8
WDC	54.75	14.50	Western Digital Corp	18.44	0.13	0.7
XRX	88.00	54.75	Xerox Corp	88.81	6.13	5.6
Services						**UP [illegible]**
AMSY	27.75	15.13	American Mgmt Systems	22.88	-0.13	0.5
ANLY	56.50	14.18	Analysts Intl (L)	32.03	2.94	8.9
AUD	62.88	26.56	Auto Data Processing (L)	20.87	0.00	1.1
CATP	48.50	23.25	Cambridge Tech Partners (H)	45.13	0.25	0.6
CEN	47.75	29.10	Ceridian Corp	44.94	0.56	1.2
CDO	46.43	18.37	Comdisco Inc (H)	80.44	5.94	17.2
CPU	38.20	15.20	CompUSA Inc	31.50	0.20	1.6
CHRZ	49.50	16.75	Computer Horizons (H)	49.50	7.34	15.4
CSC	89.20	57.83	Computer Sciences (H)	88.19	4.25	5.1
TSA	49.57	16.62	Computer Task Group (L)	40.23	2.20	5.2
EGGS	11.13	1.62	Egghead Discount Software (L)	1.50	0.20	0.8
EDS	48.50	29.50	Electronic Data Systems Corp (L)	42.73	1.38	5.1
ICO	39.62	19.75	Inacom Corp	28.25	-3.38	15.8
INEL	5.96	2.25	Intelligent Electronics	5.94	0.94	18.8
KEA	46.00	14.62	Keane Inc (H)	44.20	3.89	8.3
MICA	20.71	10.00	MicroAge Inc (L)	13.58	1.44	11.3
PAYX	51.75	25.62	Paychex (L)	44.00	1.00	2.8
PMS	70.66	41.50	Policy Management Sys	58.50	2.19	3.3
REY	58.62	15.75	Reynolds and Reynolds	21.81	2.13	10.8
SCB	22.25	10.00	SCB Computer Tech Inc (L)	19.20	3.13	19.7
SEIC	51.75	18.75	SEI Corp (H)	47.18	-0.50	0.8
SMS	68.94	18.75	Shared Medical Systems (H)	68.94	4.56	7.0
SSWE	24.20	10.20	Software Spectrum Inc	14.50	0.75	4.8
SDS	31.49	18.32	SunGard Data Systems (L)	30.50	0.81	2.7
VST	15.25	6.50	Vanstar Corp	13.20	0.19	1.4

KEY (H) – New annual high reached in period (L) – New annual low reached in period

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Companies in this issue

Page number refers to page on which story begins. Company names can also be searched at www.computerworld.com.

1-800-FLOWERS, Inc. 43
3Com Corp. 8,59,79
3M 45
A.G. Edwards & Sons 65
Aberdeen Group, Inc. 4
ABN AMRO, Inc. 98
ACT Corp. 33
ADE, Inc. 100
Albany International, Inc. 14
AlliedSignal Automotive Aftermarket 8
Alteon Networks, Inc. 6
Amdahl Corp. 3,59
America Online 2,8
American Express 8
American Family Insurance Group 49
Ameritrade, Inc. 8
Amoco Corp. 10
Andersen Consulting 6
Animation House, Inc. 60
Anthem Insurance Cos. 35
Aon Group Ltd. 49
Apple Computer, Inc. 79,101
Arbor Software Corp. 65
Arthur Andersen & Co. 24,49
AT&T Corp. 30,59
Auto-By-Tel 8
AutoNation USA 40
Avant Technologies, Inc. 45
Banker's Trust Co. 16
BASF Corp. 49
Bay Networks, Inc. 6
Bell Atlantic Corp. 39
BGS Systems, Inc. 24
Biztravel.com 6
Black & Decker Corp. 12
Bloomberg L.P. 12,55
Blue Cross/Blue Shield of Florida 3
BMC Software, Inc. 24
Bristol-Meyers Squibb Co. 39
Broughton Systems, Inc. 39
Browning-Ferris Industries, Inc. 60
Burroughs Corp. 59
Cabletron Systems, Inc. 49
CacheFlow, Inc. 62
Cambridge Technology Partners, Inc. 1,76
Chevron Corp. 55
Chrysler Corp. 40
Circuit City Stores, Inc. 40
Cisco Systems, Inc. 6
Citibank 6
Client/Server Labs, Inc. 60
Cognos, Inc. 65
Compaq Computer Corp. 35,49,59,65,98,101
CompUSA 65
Computer Associates International, Inc. 24,33,49
Computer Consulting Group 20
Concentric Network Corp. 49
Corning, Inc. 82
Crossroads Systems, Inc. 76
CSX Technology, Inc. 82
Customer Focus International, Inc. 65
CyberMedia, Inc. 8
CyberSource Corp. 28
Cyrix Corp. 8
D. H. Brown Associates, Inc. 49
Dana Corp. 60
Data General Corp. 3,8
Dataquest 1,6
Decision Technology Corp. 35
Dell Computer Corp. 35,101
Delta Airlines 76
Digital Equipment Computer Users Society 60
Digital Equipment Corp. 1,98,35,59,101
DLJ Securities Corp. 98
Docent, Inc. 45
Documentum, Inc. 45
Dohring Co. 40
Dorset House Publishing 75
Dr. Pepper-Seven Up Cos. 39
Dyno Industrier ASA 10
E. Kent Halvorson, Inc. 6
EMC Corp. 35,60
Entergy Corp. 65
EShare Technologies, Inc. 45
F.M. Webb Co. 3
Federal Source, Inc. 100
First Opinion Corp. 102
First Union Corp. 1
Fleet Financial Group, Inc. 82
Flint Ink Corp. 39
Forrester Research, Inc. 2,12
Fujitsu Microelectronics, Inc. 76
Fujitsu PC Corp. 59
Gartner Group, Inc. 3,14,70,100
Genplus Corp. 45
Gemstone Systems, Inc. 33
Giga Information Group 16,35
Gigabit Ethernet Alliance 8
Global Management Systems, Inc. 39
H&W Systems, Inc. 6
Handleman Co. 1
Hewlett-Packard Co. 3,24,55,60,98,101
Hitachi Data Systems Corp. 59
Hitachi PC Corp. 59,60
HNC Software, Inc. 1
Houston General Insurance Co. 6
Hyperion Software, Inc. 20,76,78
IBM 2,3,6,8,10,14,35,55,59,65,79,101,102
Illuminata, Inc. 3,49
Incredible Card Corp. 33
Indus International, Inc. 4
Industri-Matematik International Corp. 4
InfoModelers, Inc. 65
Information Resources, Inc. 4
Informix Software, Inc. 33,65
Infoseek 8
Intel Corp. 3,8,16,59,79
Intellidex Systems LLC 8
Interactive Travel Services Association 8
International Data Corp. 16,24,35,49,55,62
International Flavors & Fragrances, Inc. 1
International Telecommunications Union 8,39
Intersolv, Inc. 45
J.D. Edwards 6
J.M. Smuckers Co. 4
J.P. Morgan & Co. 49
Johnson & Johnson 18
Jupiter Communications, Inc. 8
Kellogg Co. 4
KPMG Consulting 76
KPMG Peat Marwick LLP 76
Kraft Foods, Inc. 20,74
Land O'Lakes Creameries, Inc. 4
Lennox International, Inc. 39
Lexicon Branding, Inc. 79,85
Longview Associates, Inc. 78
Lotus Development Corp. 6,10,49,53
Lucent Technologies, Inc. 6
Lycos, Inc. 12
Manugistics, Inc. 4
Maryville Data Systems 24
McAfee Associates, Inc. 16
Meridian Research, Inc. 18
Merrill Lynch & Co. 1,100
Meta Group, Inc. 1,6,8,76,78
MicroAge, Inc. 45
Micron Electronics, Inc. 59
MicroPatent 102
Microsoft Corp. 8,10,12,16,35,45,49,55,60,76,101,102
Millipore Corp. 20
Motorola, Inc. 76
Nabisco Food Service Co. 55
National Semiconductor Corp. 8
NCR Corp. 55
Netscape Communications Corp. 4,8,12,101
New Horizons Computer Learning Centers, Inc. 49
Nike, Inc. 20
Northwest Airlines 1
Novartis Pharmaceutical Corp. 49
Novell, Inc. 12,49
Oberon Software, Inc. 76
Office Depot, Inc. 65
Ogunquit Avenue Art Co. 39
On Command Corp. 49
Ontos, Inc. 33
Oracle Corp. 2,4,8,20,35,45,76,100
Owens & Minor, Inc. 33
Parsons Construction Co. 1
Patricia Seybold Group 6,33
Paul Kagan and Associates, Inc. 8
PeopleSoft, Inc. 6,20
Perot Systems Corp. 1
Personnel Group of America, Inc. 39
Pervasive Software, Inc. 55
PHH Vehicle Management Services 65
Plant Consulting, Inc. 6,76
Primestar, Inc. 1
Prism Solutions, Inc. 65
Procter & Gamble Co. 74,101
Quantum Partners Fund 1
Rapidata Systems, Inc. 100
Rational Software Corp. 45
Relativity Technologies, Inc. 45
RelevantKnowledge, Inc. 12
Renaissance Worldwide, Inc. 16
Reuters Analytics, Inc. 12
Reuters Holdings PLC 12
Rockwell Semiconductor, Inc. 6
Rollins Leasing Corp. 39
Ryder TRS, Inc. 1
SAP AG 1,6,8,20
SAP America, Inc. 78
SBC Communications, Inc. 55
Sears, Roebuck and Co. 1,82
Securities Industry Association 1,100
Sequent Computer Systems, Inc. 60
Siemens Nixdorf Information Systems, Inc. 3
Silicon Graphics, Inc. 102
Simpson Industries, Inc. 6
SmithKline Beecham Corp. 6
Society for Information Management 39
Software Publishers Association 12
Sony Corp. 80
Southern New England Telecommunications 35
Space Telescope Science Institute 60
Spalding Sports Worldwide 39
Spectra Logic Corp. 62
Sperry Corp. 59
Sprint Corp. 30
Staples, Inc. 65
State of the Art, Inc. 38
Stillpoint Consulting 33
Strider & Cline 70
Sun Microsystems, Inc. 2,8,49,55,59,60,98,101
Sybase, Inc. 8,45
Symantec Corp. 6
Systems & Computer Technology Corp. 33
TAC Worldwide 20
Tandem Computer Systems, Inc. 59
Tech-Boomers, Inc. 14
Technologics, Inc. 45
TeleChoice, Inc. 49
Telos Solutions, Inc. 65
The Baan Co. 76
The Equitable Cos. 40
The Mackinnon Group 1
The Sage Group PLC 35
The Standish Group International, Inc. 45,55
The Yankee Group 60
Tivoli Systems, Inc. 24,49
Toshiba America Information Systems, Inc. 59
Tripod, Inc. 12
True North PCS, Inc. 70
Unisys Corp. 3,59,101
United States Fidelity and Guaranty 45
Universal Underwriters Insurance Group 70
US Airways, Inc. 1
Van Nostrand Rheinhold 75
VeriFone, Inc. 45
Veritas Software Corp. 55
Vino Corp. 65
Wells Fargo Bank 70
Workgroup Strategic Services, Inc. 20
World Technology Services 6
Xerox Corp. 49,82
Yago Systems, Inc. 49
Yahoo, Inc. 12

Wall Street faces Y2K test

CONTINUED FROM PAGE 1

spective networks, said Art Thomas, chairman of the SIA's Year 2000 Steering Committee and senior vice president of global operations services at Merrill Lynch & Co. in Jersey City, N.J.

Testing will take place on four consecutive Saturdays beginning March 6, 1999. All stock market participants will execute test trades to uncover and fix any glitches in their individual and collective systems. The first test will mimic Dec. 29, 1999, followed in order by Dec. 30 and 31 on the next two Saturdays. The fourth test will simulate Monday, Jan. 3, the first day of trading in 2000, Thomas said.

BUSINESS THREAT

"Depending on how that goes, we may conduct one more interoperability exam in September or October," said John Fitzgerald, vice president of marketing at National Securities Clearinghouse Corp. (NSCC).

"We're right where we should be as an industry. This is the most collaborative effort in the history of the finance industry. There's been incredible teamwork to forge a common approach and test-bed suite to deal with the millennium," Thomas said.

The pilot is part of a $6 billion effort in the securities industry to upgrade every computer, Thomas said. Most of the upfront work has already been completed, he added.

The reason behind such unprecedented cooperation and the early, aggressive efforts is simple. Business is on the line.

The pressure for year 2000 compliance on the nation's stock exchanges is intense. Many of today's stock options and futures indexes will expire in 2000.

The NSCC said it handled about 3.3 million stocks and bonds transactions per day last year, worth more than $130 billion.

The spectre of that potential loss has helped to propel efforts at the major financial institutions, all of which have completed most of their year 2000 upgrades, said Max Palmer, managing director of systems at NSCC in New York.

"We had to get the bulk of our year 2000 upgrade done by this point or risk losing business and our customers' trust because we didn't have accurate financial reports and records," said Dave Eisenlohr, vice president of data center operations at the Pacific Stock Exchange in San Francisco. "Come Jan. 1, 2000, we don't have a second chance to get it right."

Pacific Stock Exchange's Dave Eisenlohr: "Come Jan. 1, 2000, we don't have a second chance to get it right"

Year 2000 preparedness timetable

Suggested action plan and target dates:

Plan	Due date
Develop a strategic approach	Now
Create organizational awareness	Now
Assess and develop detailed plans	Now
Renovate systems, applications and equipment	June 1998
Validate the renovation through testing	December 1998
Implement tested and compliant systems	Ongoing

Source: Securities Industry Association's Basle Committee on Banking Supervision, New York

The Pacific Stock Exchange has 45 people on a year 2000 development team that has been in place since 1996.

"We've just about completed implementing the changes on our options trading systems, and we're now working on the changes on our equities and expect to finish that in another few months," Eisenlohr said. Fixing the former involved manually upgrading every two-digit date field and took tens of thousands of hours.

Adam Conyers, vice president of finance at the Toronto Stock Exchange and head of its year 2000 project, said, "We had to upgrade our options systems in 1996. Otherwise, the systems would fail. And the risk [in terms of lost or failed business] to our reputations would be phenomenal," he said.

The situation is similar at the New York Stock Exchange, the American Stock Exchange and the Chicago Board of Trade, which is the nation's largest options exchange, Palmer said.

CONTINGENCY ISSUES

Another hurdle confronting the exchanges is contingency and disaster-recovery planning. Many exchanges have barely begun to address the issue [CW, Jan. 19].

Eisenlohr said the Pacific Stock Exchange is assessing its options. And Conyers said, "We don't at this point have a contingency plan. We'll examine the issue this year."

Charles Costa, chairman of the SIA's recent year 2000 conference and head of J. P. Morgan & Co.'s year 2000 project, said the SIA and Federal Reserve Board will convene a Contingency Planning Group this month to spur development of disaster-recovery and backup strategies throughout the securities industry. □

CIO files his exit from the IRS

By Matt Hamblen

THE ABRUPT departure of the Internal Revenue Service's chief information officer may slow down the start of a massive systems modernization, observers said.

There is a "distinct possibility" that a request for proposals (RFP) for an integration contract and other modernization matters could be delayed because of last week's resignation by CIO Arthur Gross, said Bob Doman, an analyst at Federal Source, Inc. in McLean, Va.

But an IRS spokeswoman disagreed, saying the integration RFP is due in about a month. A contractor is expected to be picked in October, she said.

Gross will leave the IRS April 1 for personal reasons under "extremely amicable conditions" and will continue to consult with the agency, the spokeswoman said.

IRS Commissioner Charles O. Rossotti, a technology expert who arrived at the IRS only three months ago, praised Gross' contributions, but analysts said something deeper is involved. After two years at the IRS, Gross created a blueprint for modernizing the troubled IRS systems, eliminating 26 wasteful tax systems modernization contracts and collapsing the remaining contracts into nine, according to Rossotti's statement.

Despite a glowing send-off by Rossotti, Doman said, "It seems there were strong personality differences between Rossotti and Gross, and Rossotti is responding to pressure from Congress to respond to the interests of taxpayers."

IRS's Arthur Gross

The departing CIO created a blueprint for modernizing IRS systems

Linda Cohen, an analyst at Gartner Group, Inc. in Stamford, Conn., suggested that Gross' departure "clears the way for Rossotti to get somebody onboard who is more proactive about revitalizing systems at the IRS. Gross' [modernization] initiative was not as aggressive as it could have been."

Cohen predicted the modernization will be better off, depending on who comes onboard.

By any measure, the modernization is huge; the process is expected to last 15 years. The first phase of five phases alone has been estimated to cost $640 million, the IRS spokeswoman said. □

Carriers, utilities dawdle

Lagging year 2000 upgrade initiatives in the utilities and telecommunications industries could have a severe, adverse impact on Wall Street's ability to conduct business, said Edward Yourdon, author of *Time Bomb 2000*.

"The securities industry won't be able to do any trading if the power is off and the phones aren't working," he observed.

Very few U.S. utilities are year 2000-compliant, Yourdon said. "One-third of the utilities are on schedule for their year 2000 upgrades, one-third are behind schedule and roughly one-third haven't even begun to address the issue. And yet this tardiness [on the part of the carriers and utilities] doesn't seem to register with the financial community," he said.

Not so, said Art Thomas, a senior vice president at Merrill Lynch & Co. in Jersey City, N.J., who leads the Securities Industry Association's Year 2000 Steering Committee.

"We will conduct bilateral tests with various telecommunications and utilities companies across the country this summer," he said. — Laura DiDio

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COMMENTARY

Beyond brand: The future of marketing

Don Tapscott

An 11- and 12-year-old brother and sister go on the 'net, and after some research, they decide a Volvo is the right new car for their family. They present the case to their parents, who — not being 'net savvy — have little evidence to refute the kids.

After some discussion, the parents are impressed. The kids then Web-surf to find the best price and best local dealer. The family now enjoys its new Volvo.

Welcome to the 'Net Generation — the 80 million children of the baby boomers who are the first to come of age in the digital age. After researching these kids for some time, I'm convinced that they will not only dominate consumption and transform marketing in the future — they are doing it today.

In the U.S. alone, they already have $150 billion in purchasing power. More important, they influence family purchasing like never before — another $500 billion. They have greater power in households because of their command of the new medium, and the 'net gives them better access to comparative product information than their parents enjoy.

Marketers increasingly will find themselves selling to parents by marketing to their children, especially for new-media-related products and services. That will raise far-reaching ethical issues for businesses, parents and lawmakers because on the 'net, the boundaries between ads and content melt like the cheese on a Whopper.

Because N-Geners are used to highly flexible, custom environments they can influence, they want highly customized services and products. As the Shania Twain song goes, they want to "change their minds a thousand times."

They also want to try everything out for free, meaning companies will have to give products and services away and find new models for retrieving revenue. They will also want to purchase any commodity, including grocery staples, online. The new formula will be N-Gen + the 'net = electronic commerce.

All this spells trouble for the brand, as N-Geners send their smart software agents out to select everything from cookies to cars. Such software agents will be "brand-blind," bringing the value of products and services to the fore. Tide can say it washes whiter, but if it doesn't, these kids will find out.

And brands can be instantly established in cyberspace (witness Netscape enjoying the fastest proliferation of a brand ever — with virtually no mass advertising). On the flip side, brands can be instantly destroyed or severely damaged (witness the Pentium fiasco a couple of years ago, when a professor informed the 'net that the chip had problems with floating-point operations).

In the future, the brand will shift from an image to a relationship based on value and services, which will be delivered to media-savvy consumers through the 'net. Tide, which has good value, will be bundled with services that help a consumer better manage a home. Procter & Gamble will become a home cleaning and homemaker relationship company.

And the challenge for IS at Proctor & Gamble (and, of course, everywhere else) is not just to build good operational systems, but to create effective platforms for reaching out to and maintaining strong relationships with customers. □

Tapscott is chairman of the Alliance for Converging Technologies and a leading authority on the impact of the digital media on business and the economy. He is the author of six books, including the best-sellers Paradigm Shift *and* The Digital Economy. *His most recent book is* Growing Up Digital: The Rise of the Net Generation *(McGraw Hill, 1998).*

What do you want your vendor to do?

David Moschella

Compaq's purchase of Digital raises one of my favorite questions for large IT customers: What do you actually want your vendors to do?

Do you want to get your laptops and desktops from the same vendor? How about your desktops and servers? Servers and central systems? Systems and software? Software and services? Services and outsourcing? Outsourcing and strategic consulting? Where do you draw the lines?

From the 1960s through the mid-1980s, enterprise customers often bought a range of products and services from a single vendor, such as IBM, Digital or Unisys. But with the rise of PCs and more open systems, corporations all but junked that approach to rely on specialized providers: Microsoft, Compaq, Sun, Novell, Oracle, etc. Of the old vertically integrated U.S. suppliers, only IBM and Hewlett-Packard now bear any resemblance to their previous form.

Despite the sweeping nature of these changes, it was never completely clear what was going on. Were customers rejecting one-stop shopping or were they merely reacting to the fact that the existing vertically integrated suppliers offered a bunch of out-of-date, proprietary products? For a while, that debate seemed mostly academic. But now that products based on Wintel standards have grown to meet such a wide range of requirements, the question has dramatically resurfaced.

Some reintegration is indeed occurring. The top PC makers — Compaq, Dell, IBM and HP — are also the top server vendors. With Compaq's acquisitions of first Tandem and now Digital, three of today's Big Four are stressing the close relations among their PCs, systems and services to a degree almost unimaginable just a few years ago. Back then, the PC leader board included Compaq, Apple, Dell and IBM, only one of which was seriously interested in the services business.

Moreover, two of today's leaders — HP and Compaq/Digital — are now Microsoft's most important global partners. By combining their PCs, servers and support services with key Microsoft offerings such as Windows NT and Exchange, these next-generation systems companies can nearly match the breadth of their vertically integrated predecessors. The difference is that today's systems companies, with the exception of IBM, have pretty much given up on their own software, wisely opting to rely on Microsoft and third parties.

For now, this reintegration appears to be what many customers want. The rise of both NT and network-based computing has shifted the industry back toward a more centralized, server-based model. And this trend should strengthen over the next few years as network computers, server-based Windows applications and cost-of-ownership tools are added to the mix.

But don't be surprised if things eventually flow back the other way. Consumers and small businesses already make up more than half the world's PC market, and their share will steadily rise. These customers don't give a hoot about global integration capabilities. There are good reasons to question how well IBM and HP will manage to serve this critical chunk of the business.

As for Compaq, if Eckhard Pfeiffer can maintain the company's speed, focus and cost-competitiveness while absorbing a behemoth such as Digital, he will have vaulted Compaq into the industry's highest echelon. However, history suggests that the odds are heavily stacked against him. Remember Burroughs/Sperry, HP/Apollo, AT&T/NCR, SGI/Cray and Samsung/AST. I suspect Michael Dell still likes his long-term position.

The real question is: Do you? □

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The Back Page

altcw

Dispatches & Images from the Fringes of the Electronic Frontier

Patent watch

Recently issued U.S. patents (number, inventor/assignee, date)

Expert system for medical advice. The computerized, voice-response system provides medical advice for 100 common ailments. The advice, available via telephone, 24 hours per day, is based on a caller's self-reported symptoms and consultation history and the latest medical research. The system tracks the improvement or deterioration of the patient's condition during follow-up calls. (5,711,297, First Opinion Corp., La Jolla, Calif., Jan. 27)

Method for rapid delivery of faxes to "a massive number of recipients." Fax broadcasting from a single computer to hundreds of thousands of recipients can be slow and costly. This invention calls for several computers to send the data to an army of other computers in a geometric progression. A scheduling computer orchestrates the deliveries, such as sending high-priority faxes immediately and sending low-priority faxes when network charges are lowest (5,712,712, Rapidata Systems, Inc., Durham, Conn., Jan. 27)

Sources: MicroPatent (www.micropat.com), IBM (patent.womplex.ibm.com)

Consumer alert: Fake mice on the loose

Microsoft recently warned consumers that pirates are trying to flood the market with fake mice bearing the Microsoft logo, the IDG News Service reports from Hong Kong. A raid in China seized 12,800 finished OEM mice, 43,200 half-finished mice and 50,000 mouse labels bearing the words "Microsoft Corporation."

A comfy hammock for traveling laptops

Tired of mountains of cardboard boxes, custom-fit Styrofoam corner braces, plastic peanuts and bubble wrap? The Cradelair is an ingenious box for shipping any type of laptop computer. The reusable box, made by Chicago-based ADE, Inc., has a plastic sling that protects the laptops. The price is $20 for a single kit or $6 to $8 per kit in large quantities.

Inside Lines

Bill Gates tried to brush off last week's up-close-and-personal with a cream pie, but sources say Interpol is scouring Europe for the pastry perp, a white male bearing an uncanny resemblance to Soupy Sales

Get a life

After a routine interview with a user on the topic of his company's network infrastructure, the network manager asked our reporter if he'd like to see "baby pictures." With a grin from ear to ear, the network manager produced two photos of wiring closets equipped with switching equipment and endless cabling. "You can keep them," the beaming network manager said. The reporter declined. God knows what the family photo album contains!

Biting the hand that feeds you

The usually cozy relationship between vendors and industry analysts went a bit off the tracks last week for Sybase and Meta Group. Meta's public relations apparatus fired off an E-mail report about an imminent acquisition that its analysts had been given advance word on from Sybase — but alas, the deal was supposed to be kept hush-hush until this week. A Meta staffer blamed the faux pas on an internal misunderstanding and said it "turned into something of an imbroglio," resulting in a profuse apology to Sybase. (See news shorts, page 8)

Novell packages

Novell this week will release beta versions of its forthcoming application management packages designed to reduce cost of ownership. All three packages will run as NLMs on top of NetWare 4.x, a source at the company said. "The management packages are all oriented toward making it easier for and users to launch applications and configure their desktops," the source said.

Don't trash the market leader

Philips Mobile Computing found that out the hard way at the Demo conference last week in Palm Springs, Calif. In rigging up a *Dating Game*-like skit to promote its new Nino handheld computer, Philips included a withering attack on 3Com's hot-selling PalmPilot. But a PalmPilot rep got the last laugh a few minutes later. "How many of you have a PalmPilot?" he asked the crowd. About half the 800 attendees raised their hands and cheered.

On the Web, as in the real world, it does seem that men are from Mars and women from Venus. . . . or at least from different interest areas. RelevantKnowledge's list of Top 10 trafficked sites by gender didn't show a single overlapping site (No. 1 for men was ESPN SportsZone, while women flocked most to Barnes & Noble). And it looks as if men won't ask for directions in cyberspace, either. Mapquest was No. 7 on the women's Top 10, but it didn't show up on the men's list at all. If you have a Top 10 list or any other type of news tip, send it to news editor Patricia Keefe at (508) 820-8183 or patricia_keefe@cw.com.

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